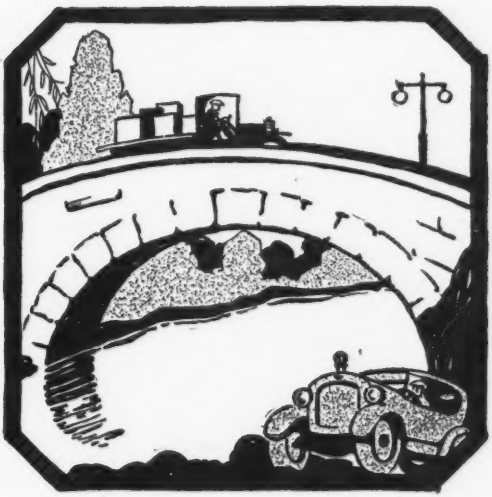
FACTS AND FIGURES
of the
AUTOMOBILE INDUSTRY



1923

NATIONAL AUTOMOBILE CHAMBER OF COMMERCE
366 MADISON AVENUE, NEW YORK

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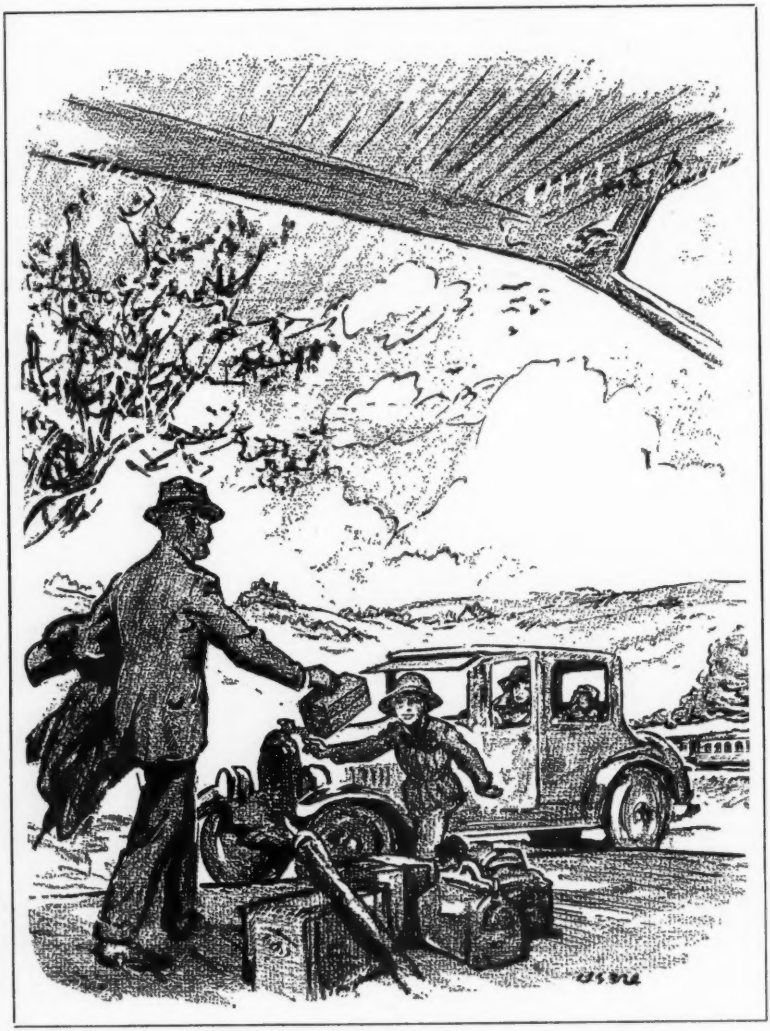
LINKING TOWN AND COUNTRY



Drawing by Cesare

Motor vehicles are uniting with rail lines in the intensive development of suburban areas. Home building increased 53% in the United States during 1922.

1922—A Record Year

Production of 2,659,064 Motor Vehicles Passes the High Mark of 1920 by 22%

Motor Vehicles Produced	**2,659,064†**
Number cars	2,406,396
Number trucks	252,668
Per cent increase over 1921	60%
Motor Vehicle Mfg. Business:	
Capital invested	$1,456,649,954
Cost of material bought	$1,289,614,326
Number of employees	253,104
Wages and salaries	$ 395,707,531
Wholesale Value of Output of Automotive Products	**$2,558,207,389**
Value complete car and truck output	$1,789,638,365
Value of parts and accessories replacements	380,503,024
Value of tire replacements	388,066,000
Tire and Fuel Figures:	
Gasoline produced in U. S., gal.	6,202,234,613
Total gasoline consumed in U. S., gal.	5,382,504,177*
Tire casings produced	40,930,852

*Estimated that 80% of this total is consumed by motor vehicles.

†Following the classification used in previous editions of Facts and Figures, this total includes motor vehicles made in Canada but in plants controlled by U. S. companies. **The net production figure for motor vehicles made in the U. S. is 2,561,000.**

Motor Car Statistics 1922

Total Motor Car Output 2,406,396

Open cars	1,691,368
Closed	715,028
Per cent of closed cars in total output	30%
Wholesale value of cars produced	$1,567,003,041
Motor cars exported	67,096
Percent of output exported	2.8%

Number of Motor Cars in U. S. 10,863,389

Largest state user, California	822,394
State having biggest per cent gain, Louisiana	31%
Motor Cars on farms	3,200,000
Per cent owned by farmers	29.4%

Size of Motor Car Mfg. Business:

Capital invested	$1,154,103,335
Number of factories	112*
Value of repair parts business	$ 165,640,647

Retail Motor Car Business:

Dealers	38,392
Garages	48,875
Repair Shops	65,184
Charging Stations	4,874

*Companies definitely known to be in production.

Motor Truck Figures 1922

Total Motor Truck Production 252,668

Exports of trucks....	11,453
Per cent exported....	4.5%
Wholesale value of output.....	$222,635,324

Commercial Vehicle Registration 1,375,725

Number of states registering trucks separately.....	43
Largest state user, New York.....	185,858
Trucks on farms.....	300,000
Number of Electric R. R. using motor buses.....	60

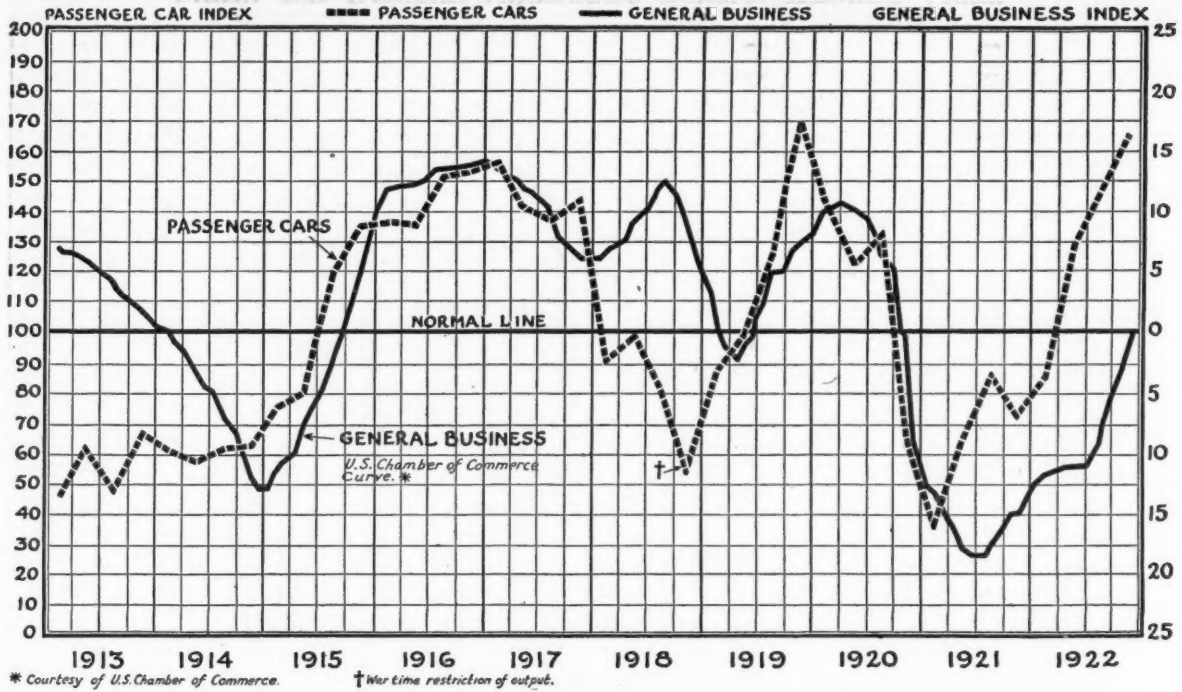
Size of Truck Mfg. Business:

Capital invested.....	$302,546,620
Value of parts sold....	$43,836,851
Number of factories...	131*

Truck Dealers 24,833†

*Companies definitely known to be in production.
†Of this total, 2,537 handle trucks exclusively; the remainder handle passenger cars also.

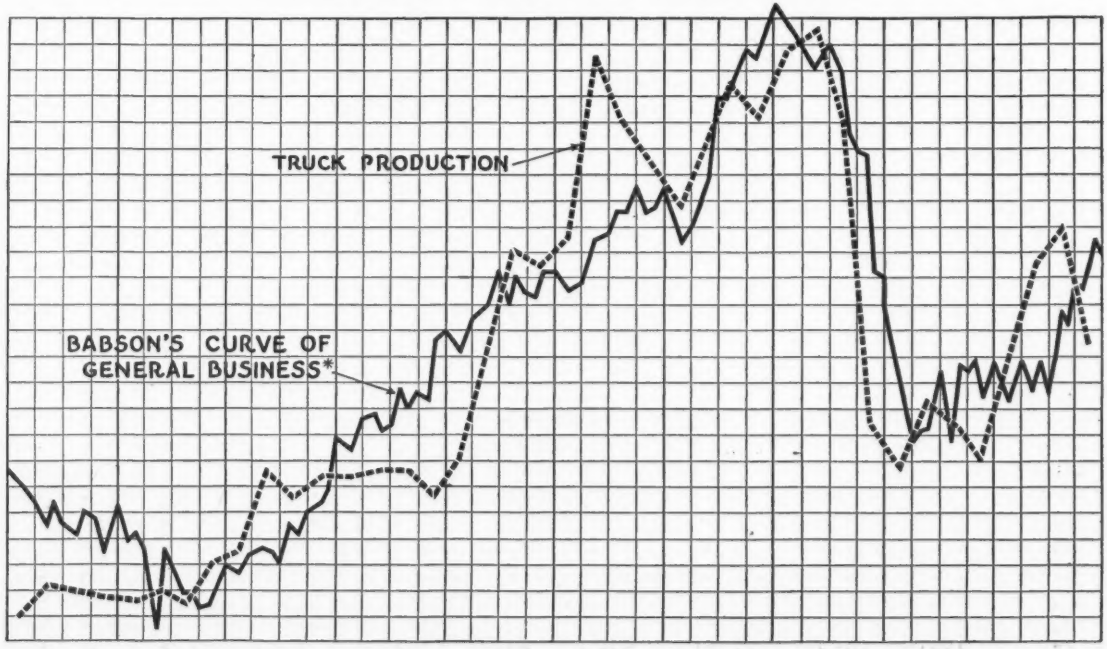
Motor Car Demand Anticipates General Business Trend



* Courtesy of U.S. Chamber of Commerce. † War time restriction of output.

The above chart shows: (1) Passenger car production tends to anticipate changes in general business by 3 to 6 months. (2) The automobile industry is subject to the same economic laws of expansion and contraction in activity as other industries or as general business. The factors of growth or general increase in production over a number of years, and seasonal variation or the usual fluctuation in industrial output depending on the season of the year, have been measured and eliminated from the curves.

Truck Trend Similar to Babson's Curve



*Courtesy of Babson Statistical Organization.

The above chart shows that the demand for trucks depends on general business conditions, as shown by Babson's curve. The trend in truck output has been upwards since 1921. First quarter 1923 more than recovered from the drop in the fourth quarter 1922.

Production of Motor Vehicles 1895-1922

Year	Production
1895	300
1896	600
1897	1,200
1898	2,400
1899	3,874
1900	5,000
1901	7,000
1902	9,000
1903	11,000
*1904	21,975
1905	25,000
1906	34,000
1907	44,000
1908	65,000
*1909	130,986
1910	187,000
1911	210,000
1912	378,000
1913	485,000
*1914	569,054
1915	892,618
1916	1,583,617
§1917	1,868,949
§1918	1,153,638
1919	1,974,016
1920	2,205,197
1921	1,661,550
†1922	**2,659,064**

*From U. S. Census Reports.

§Production figures compiled by Automotive Products Section, War Industries Board, from sworn statements by manufacturers.

†Includes, as in preceding years, the motor vehicles made in Canada, but in plants controlled by U. S. companies; **net production figure for motor vehicles made in the U. S. is 2,561,000.**

NOTE:—Production figures are compiled from reports of individual companies to National Automobile Chamber of Commerce.

Annual Production of Motor Vehicles

PASSENGER AND COMMERCIAL COMBINED

Year	Number	Wholesale Value	Year	Number	Wholesale Value
*1899.....	3,700	$ 4,750,000	1912.....	378,000	$ 378,000,000
1903.....	11,000	12,650,000	1913.....	485,000	425,000,000
*1904.....	21,975	30,864,616	*1914.....	569,054	458,957,843
1905.....	25,000	40,000,000	1915.....	892,618	691,778,950
1906.....	34,000	62,900,000	1916.....	1,583,617	954,969,353
1907.....	44,000	93,400,000	†1917.....	1,868,949	1,274,488,449
1908.....	65,000	137,800,000	†1918.....	1,153,638	1,236,106,917
*1909.....	130,986	165,148,529	1919.....	1,974,016	1,885,112,546
1910.....	187,000	225,000,000	1920.....	2,205,197	2,232,927,628
1911.....	210,000	262,500,000	1921.....	1,661,550	1,260,000,000
			§1922.....	**2,659,064**	**1,789,638,365**

PASSENGER CARS

*1899.....	3,700	$ 4,750,000
*1904.....	21,281	23,634,367
*1909.....	127,731	159,918,506
1910.....	181,000	213,000,000
1911.....	199,319	240,770,000
1912.....	356,000	335,000,000
1913.....	461,500	399,902,000
*1914.....	543,679	413,859,379
1915.....	818,618	565,978,950
1916.....	1,493,617	797,469,353
†1917.....	1,740,792	1,053,505,781
†1918.....	926,388	801,937,925
1919.....	1,657,652	1,461,785,925
1920.....	1,883,158	1,809,170,963
1921.....	1,514,000	1,093,918,000
1922.....	**2,406,396**	**1,567,003,041**

MOTOR TRUCKS

*1904.....	411	$ 946,947
*1909.....	3,255	5,230,023
1903-1910...	10,374	20,485,500
1911.....	10,655	22,292,321
1912.....	22,000	43,000,000
1913.....	23,500	44,000,000
*1914.....	25,375	45,098,464
1915.....	74,000	125,800,000
1916.....	90,000	157,500,000
†1917.....	128,157	220,982,668
†1918.....	227,250	434,168,992
1919.....	316,364	423,326,621
1920.....	322,039	423,756,715
1921.....	147,550	166,082,000
1922.....	**252,668**	**222,635,324**

*From U. S. Census reports.

†Production figures compiled by Automotive Products Section, War Industries Board, from sworn statements by manufacturer.

§Figures as in previous years include production of plants owned by U. S. companies but located in Canada. Output figures for these plants is: 1920, 94,144; 1921, 66,246; 1922, 98,000.

Truck Production By Capacities

	1919		1920		1921		1922	
Size	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**
¾ ton or less	66,436	21%	61,187	19%	33,809	22.9	62,194	24.5
1 ton	148,691	47%	164,240	51%	79,844	54.1	147,796	58.5
1½ ton	26,891	8.5	35,424	11%	7,076	4.8	7,134	2.8
2 ton	31,636	10%	25,763	8%	11,206	7.6	13,830	5.5
2½ ton	17,400	5.5	12,871	4%	3,958	2.7	11,247	4.5
3½ ton	12,022	3.8	12,893	4%	3,343	2.3	3,319	1.3
5 ton	9,175	2.9	6,441	2%	4,714	3.2	5,718	2.3
Over 5 ton	4,113	1.3	3,220	1%	3,600	2.4	1,430	.6
Total	**316,364**	**100%**	**322,039**	**100%**	**147,550**	**100%**	**252,668**	**100%**

Accessory Business—1922

Wholesale Value $1,751,000,000

(Estimate of the Parts, Unit, Tire and Accessory Production, prepared by Motor and Accessory Manufacturers Association from M. & A. M. A. Credit Records and Automotive Industries data.)

(1) Total value of original equipment business. (Value of parts, units, and accessories sold to car and truck manufacturers)..... $982,952,384†

(2) Total value of parts, tires and accessories manufactured for replacement..... 768,569,024*

(3) Grand total value of parts, unit, tire and accessory production...$1,751,521,408

(4) Grand total wholesale value of cars and trucks.....$1,789,638,365

(5) 80% of Item No. 4 (allowing 20% for car and truck manufacturers' profit, overhead, etc.).....$1,428,861,790

(6) Ratio of Item No. 1 to Item No. 5. (Showing proportion of total vehicle wholesale value manufactured by parts and accessory makers).....69%

†Based on M. & A. M. A. Credit Dept. records.
*Estimate of *Automotive Industries*.

Motor Vehicles Put Into Domestic Use—U. S. and Canada, 1922

Motor Vehicles produced in the United States not including Canadian plants of U. S. Companies.....2,561,064

Motor Vehicles produced in Canada.....98,000

Motor Vehicles exported from the U. S. to Foreign Countries 78,549

U. S. Motor Vehicles shipped to U. S. territories.....3,395

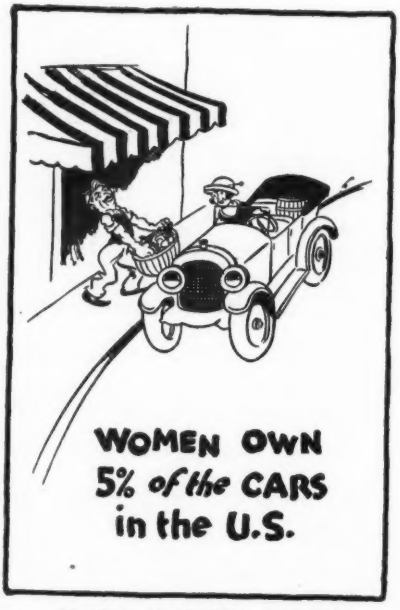
Motor Vehicles exported from Canada to Foreign Countries..... 37,958

Motor Vehicles imported into U. S...456

Motor Vehicles imported into Canada 11,591

Motor Vehicles sold in the U. S. for Domestic Use.....2,478,576

Motor Vehicles sold in Canada for Domestic Use.....71,433



Checking of 100,000 registration cards taken in random blocks of 10,000 from 10 different states reveals a general average of 5% of the cars owned by women. In Iowa, the percentage of the block analyzed shows but 2.5% per cent whereas Kentucky and Massachusetts bring up the average with 9% and 7%.

Registration of Motor Vehicles 1895-1922

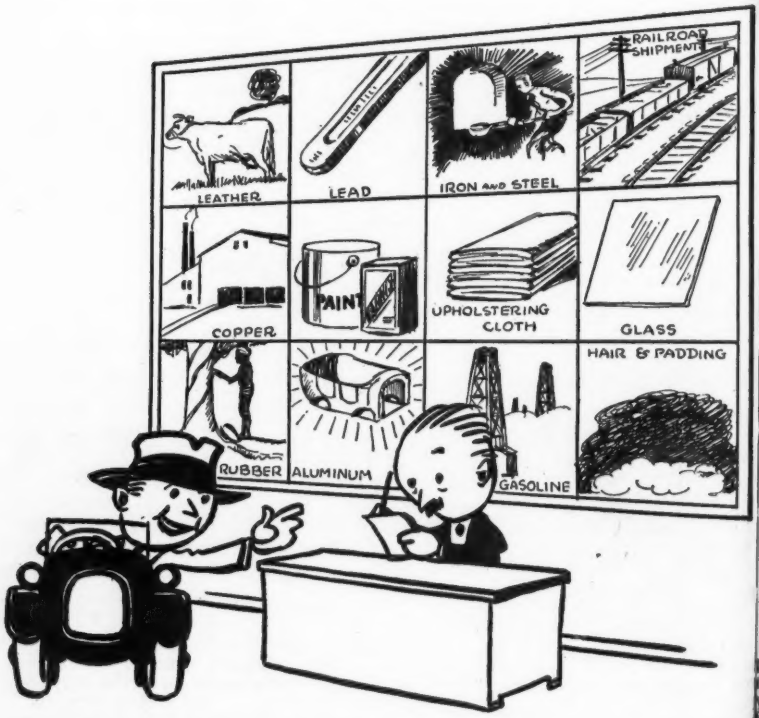
Year	Registration
1895	300
1896	900
1897	2,100
1898	4,600
1899	8,624
1900	13,824
1901	20,590
1902	28,755
1903	38,083
1904	57,864
1905	77,988
1906	106,928
1907	142,061
1908	197,479
1909	311,197
1910	468,497
1911	639,514
1912	944,000
1913	1,287,000
*1914	1,711,339
1915	2,445,664
1916	3,512,996
1917	5,104,321
1918	6,146,617
1919	7,530,105
1920	9,177,129
1921	10,464,005
1922	**12,239,114**

*Years 1914-1922 are registrations compiled from State records by the U. S. Bureau of Public Roads.

NOTE:—Registrations by States are given on pages 50-59, by Cities on pages 22-23.

Raw Materials Consumed in

Material	Total U. S. Production.	Amount Used in Mfg. Cars. and Trucks	%Used in Mfg. Cars and Trucks.
Iron and Steel.....	60,379,000 tons	2,374,723 tons	4.0%†
Aluminum.....	.....	72,706,900 lbs.	25.0%*
Copper.....	981,000,000 lbs.	105,000,000 lbs.	10.7%
Glass (plate).....	75,000,000 sq. ft.	26,908,800 sq. ft.	36.0%
Imit. Glass.....	.....	9,473,840 sq. ft.	.....
Lead.....	531,000 tons	10,000 tons.	1.9%
Tin.....	66,640 tons	3,940 tons	6.0%



THE AUTOMOBILE, ONE OF GENERAL INDUSTRY'S BEST CUSTOMERS

Manufacturing Motor Vehicles, 1922

Material	Total U. S. Production.	Amount Used in Mfg. Cars and Trucks	%Used in Mfg Cars and Trucks.
Nickel.....	.....	7,891,000 lbs.	.....
Upholstery Leather	83,415,000 sq. ft.	45,260,000 sq. ft.	54.3%
Imit. Leather.....	.....	120,818,000 sq. ft.	.....
Upholstery Cloth..	.....	10,425,435 yds.	.....
Lumber.....	.....	468,074,640 bd. ft.	.....
Top and Side Curtain Materials...	.....	22,544,955 yds.	.....
Hair and Padding..	.....	34,832,753 lbs..	.....
Paint and Varnish	.....	7,597,235 gal..	.....
Coal.....	.....	2,695,000 tons	.....

†The American Metal Market estimates that out of the 1922 production of pig iron about 20,000,000 tons was used in making steel ingots. Hence a large portion of the combined iron production and steel production—60,379,783 tons—was weighed twice. Allowing for this duplication of about 20,000,000 tons gives a total net output iron and steel of about 40,379,783 tons. Using this net figure as a base, the production of motor vehicles consumed 5.9%.

*Estimated.

Automobile Industry Third

(*Census of Manufactures, 1921*)

Industry	Value of Product
1. Slaughtering and Meat Packing.....	$2,200,942,000
2. Petroleum.....	1,727,440,000
3. **Automobiles**.....	**1,666,140,000**
4. Foundry and Machine Shop Products.....	1,565,527,000
5. Steel Works and Rolling Mills.....	1,481,659,000
6. Cotton Goods.....	1,279,168,000
7. Bread and Other Bakery Products.....	1,089,759,000
8. Men's Clothing.....	933,249,000
9. Lumber and Timber Products.....	902,501,000
10. Boots and Shoes.....	866,817,000

NOTE: Comparisons of one industry with another are difficult, because of the possible sub-classifications, including or excluding affiliated industries. For example, in the above table, "automobiles" refers to the manufacture of the completed vehicle, and excludes "automobile bodies and parts" and "automobile repairing." Similarly with other industries. The classification used above is that of the Bureau of Census. No figures are yet available for Flour Milling, which it is estimated may rank among the first ten.

Motor Industry Third Largest Rail Shipper of Manufactured Articles

Occupying first four places in the number of carloads of manufactured articles are refined petroleum and its products; iron and steel; automobiles and parts; cement. All these are employed in the manufacture and use of motor cars.

The leading manufacturing industries, as shown by the commodity statistics of the Interstate Commerce Commission, are:

	Carloads 1922		Carloads 1922
Refined petroleum and its products	1,110,107	Castings, machinery and boilers	214,706
Bar and sheet iron, structural iron, and iron pipe	683,375	Iron, pig and bloom	212,753
Automobiles, motor trucks and parts except tires and chains	522,287	Lime and Plaster	203,008
Cement	489,364	Sugar, syrup, glucose and molasses	184,871
Brick and artificial stone	454,231	Canned Goods, (all canned food products)	134,445
Fertilizers (all kinds)	300,783	Agricultural implements and vehicles other than automobiles	120,080
Chemicals and explosives	237,441		

Railroad Freight Car Load Shipments from Automobile Factories

Year	1916	1917	1918	1919	1920	1921	1922
January	21,202	23,292	11,528	17,039	25,057	6,485	15,357
February	23,581	22,385	12,030	19,152	25,505	9,986	19,636
March	29,622	29,443	16,728	23,744	29,326	16,287	27,753
April	27,689	27,700	17,797	25,267	17,147	20,187	31,334
May	25,120	26,451	17,833	24,497	21,977	18,608	33,416
June	24,558	21,524	15,869	22,196	22,516	20,269	34,230
July	18,451	19,993	13,741	24,897	23,082	19,514	29,116
August	21,237	22,044	13,868	22,677	23,386	20,758	32,817
September	22,089	20,538	10,879	24,711	20,804	19,002	26,335
October	19,876	21,403	10,667	29,843	17,209	17,808	27,100
November	18,169	18,942	9,254	26,690	13,253	14,264	27,232
December	19,580	15,827	11,258	24,004	11,802	12,310	27,244
***Total**	**271,174**	**269,542**	**161,470**	**284,717**	**251,064***	**195,478***	**331,570***

***Total carloads of completely assembled machines in 1922, including shipments from both main plants and assembling plants, 404,195; total machines driven from main and assembling plants to dealers, 751,347.**

Motor cars and motor trucks were driven overland from all main factories to the number of 470,867 in 1920, 144,446 in 1921 and 304,001 in 1922. Shipments by boat amounted to 32,883 machines in 1920, 22,310 machines in 1921 and 58,220 in 1922.

Crude Oil Figures for United States

(Figures from U. S. Geological Survey)

(In Barrels of 42 Gallons)

Year	Domestic Production	Imports	Consumption
1916	300,767,158 bbl.	20,568,000 bbl.	318,588,000 bbl.
1917	335,315,601 "	30,168,000 "	377,736,000 "
1918	355,927,716 "	37,728,000 "	413,076,000 "
1919	377,719,000 "	52,812,000 "	418,476,000 "
1920	443,402,000 "	108,792,000 "	524,016,000 "
1921	469,639,000 "	125,136,000 "	525,470,000 "
1922	551,197,000 "	124,340,000 "	586,359,000 "

Gasoline Figures for United States

(Figures from U. S. Bureau of Mines)

Year	Domestic Production	Domestic Consumption	Excess of Supply Over Demand
1918	3,570,312,963 gal.	3,129,509,872 gal.	440,803,091
1919	3,957,857,097 "	3,434,810,726 "	523,046,371
1920	4,882,546,699 "	4,256,427,955 "	626,118,694
1921	5,153,549,318 "	4,516,012,979 "	637,536,339
1922	6,202,234,613 "	5,382,504,177 "	819,730,436

Oil Resources of the World

(Estimated by U. S. Geological Survey)

Eastern Hemisphere	21,250,000,000 bbl.
Probable undiscovered	20,000,000,000 "
South America	9,250,000,000 "
United States	7,000,000,000 "
Mexico	4,500,000,000 "
Canada	1,000,000,000 "

1922 Tire Production

(Figures from Rubber Association of America)

Tire Casings Produced:
Actually reported to Rubber Association..... 30,698,139 estimated to be 75% of whole
100% equals..... 40,930,852

Inner Tubes Produced:
Actually reported to Rubber Association..... 38,137,435 estimated to be 75% of whole
100% equals..... 50,849,912

Solid Tires Produced:
Actually reported to Rubber Association..... 786,603 estimated to be 90% of whole
100% equals..... 874,003

Crude Rubber Consumed in all Tire Production-Casings, Tubes and Solids—Estimated—Lbs..... 523,526,219

Fabrics Consumed—Estimated—Lbs..... 178,049,206

2 States, 38 Cities, Reduce Motor Fatalities

1922 SAFETY HONOR ROLL

STATES

State	Motor Fatalities 1921	Motor Fatalities 1922
Connecticut	235	206
Massachusetts	544	522

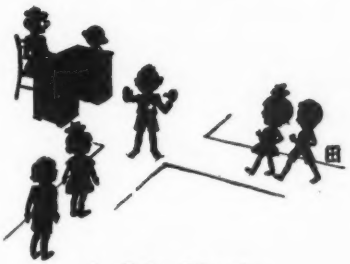
City	Total No. Motor Fatalities 1921	Total No. Motor Fatalities 1922	City	Total No. Motor Fatalities 1921	Total No. Motor Fatalities 1922
Alameda, Cal	4	3	Passaic, N. J.	11	3
Birmingham, Ala	40	31	Perth Amboy, N. J.	8	4
Bloomington, Ill	3	2	Portland, Ore.	32	26
Brookline, Mass	3	1	Quincy, Ill.	3	2
Cleveland, Ohio	154	147	Reading, Pa.	15	13
Columbus, Ohio	49	39	Rock Island, Ill.	2	1
East Cleveland, Ohio	4	2	Rockford, Ill.	6	5
Everett, Mass.	5	2	Scranton, Pa.	27	19
Fresno, Calif.	13	11	Sheboygan, Wis.	4	3
Hartford, Conn.	31	29	Somerville, Mass.	14	10
Kansas City, Mo.	65	63	Spokane, Wash.	19	9
Lexington, Ky.	11	10	Springfield, Mass.	23	14
Lynchburg, Va.	6	4	St. Paul, Minn.	35	32
Manchester, N. H.	3	2	St. Joseph, Mo.	14	10
Muskegon, Mich.	7	2	Tacoma, Wash.	13	10
New Britain, Conn.	11	9	Tampa, Fla.	19	17
Newport, R. I.	2	1	Trenton, N. J.	29	28
Oak Park, Ill.	15	14	Waterbury, Conn.	63	54
Omaha, Neb.	28	27	Williamsport, Pa.	8	4
Pasadena, Calif.	14	7	Sioux Falls, S. D.	...	0

Massachusetts data is from the Registry of Motor Vehicles, Commonwealth of Massachusetts.
Connecticut figures are from the report of the Commissioner of Motor Vehicles.
Cities figures are compiled from Health Department records by the National Bureau of Casualty and Surety Underwriters.

14,000 Automobile Fatalities in 1922

Year	Number Auto Deaths per Car	Total Number Auto* Deaths	Registration of Cars	Number of Cars per 1000 Population	Auto Deaths per 1000 Population
1917	.0019	9184	5,104,321	48	.0887
1918	.0016	9672	6,146,617	59	.0919
1919	.0013	9827	7,530,105	71	.0936
1920	.00123	11,358	9,177,129	87	.1040
1921	.00119	12,500	10,464,005	99	.1100
1922	.00114	14,000	12,239,114	115	.1334

Five Ways to Promote Safer Traffic—



1. Safety Education

Thirty-eight cities demonstrated in 1922 that motor vehicle fatalities can be reduced in number even while traffic is rapidly increasing.

2. Adequate Playgrounds

Among safety methods advocated by traffic experts are: Education in the schools, adequate playgrounds, city planning to remove congestion and dangerous crossings, proper traffic regulation.

Annual Safety Contest for Schools

Under the direction of the Highway Education Board, there is an annual contest for the best lessons and essays by school teachers and pupils on the subject of traffic safety. The first award in each group includes a trip to Washington, D. C. with all expenses paid. Prizes are given by the National Automobile Chamber of Commerce. Full particulars on the current competition may be obtained from the Highway Education Board, Willard Building, Washington, D. C. Winners in the last Contest were:—

LESSON CONTEST FOR TEACHERS

1st prize—MRS. ANNE ROGERS, Sterling, Colorado.

2nd prize—MISS TERESA M. LENNEY, New Rochelle, N. Y.

3rd prize—MISS IDA G. ALE, Trenton, N. J.

ESSAY CONTEST FOR PUPILS

1st prize—STANLEY NEWCOMB, San Diego, Calif.

2nd prize—MERLENE BECK, Draper, Utah.

3rd prize—JAMES EDWARD GILLENWATERS, Nashville, Tenn.

For Children in Farm Districts

Rural highways present traffic problems and, accordingly, the National Grange conducts a competition each year on the subject of safety on rural highways. The first award is a trip to Washington. Prizes are given by the National Automobile Chamber of Commerce. Details may be obtained from S. J. Lowell, Master, National Grange, Fredonia, New York. Winners in the two last contests were:—

1921 RURAL HIGHWAY SAFETY CONTEST

1st, J. SCHUYLER LOOMIS, Limerick, New York.

2nd, (1st in girls' group) — GRACE O'DELL, R. 1, Mt. View, Calif.

1922 RURAL HIGHWAY SAFETY CONTEST

1st, MILDRED B. SOPER, Seneca Castle, N. Y.

2nd (1st in boys' group)— DUANE GIBSON, Smith's Basin, N. Y.

3. Jail for Speeders

4. City Planning

5. Traffic Regulation

Salesmen Increase Trade Through Use of Cars

The experience of 112 firms which have salesmen using motor cars is summarized in the following tabulation. Data supplied by the National Hardware Association, published in the Oil, Paint and Drug Reporter:—

Section	No. Firms with Salesmen Using Cars	Cars Owned by (A) Salesman (B) Firm (C) Both	Average Weekly Mileage of Salesman with Car	Does Car Increase Calls and Sales?
New England.....	9	A-4 B-5	366	Yes-7 No-2
North Middle Atlantic...	16	A-13 B-2 C-1	265	Yes-15
South Atlantic.....	11	A-5 B-4 C-2	413	Yes-11
Gulf.....	8	A-5 B-1 C-2	298	Yes-8
South Western.....	6	A-4 B-2	300	Yes-5 Same-1
East Central.....	16	A-8 B-5 C-3	364	Yes-16
West Central.....	13	A-9 B-1 C-3	356	Yes-10 Same-2 No-1
Missouri River.....	17	A-12 B-2 C-3	356	Yes-16 No-1
Rocky Mountains.....	5	A-3 B-1 C-1	319	Yes-5
Pacific Coast.....	11	A-7 B-1 C-3	317	Yes-10
Total.....	**112**	**A-70 B-23 C-18**	**Av. 337**	**Yes-103 Same-3 No-4**

(*Continued from preceding page*)

METHODS OF FINANCING SALESMAN'S CAR PURCHASE

16 firms loan money to salesmen on interest bearing notes secured by mortgage on car, with payments at regular intervals.

12 loan money on personal notes.

33 advance the cost and deduct weekly installments from expense allowance.

1 loans one-half without interest to be paid back at rate of $25.00 per month.

16 give no assistance in purchase.

1 gives loan on demand note and makes arrangements for payment by regular installments.

8 advance the money but require payment within one year.

1 requires the salesman to pay ⅓ cash with the firm guaranteeing the balance.

1 firm buys the first machine and the salesman pays for it in installments. The salesman in this case buys the second machine outright.

MAINTENANCE AND OPERATING COSTS

91 of 112 firms bear part or all of car upkeep.

$16.36 per week is the average maintenance and operating cost *exclusive of depreciation.*

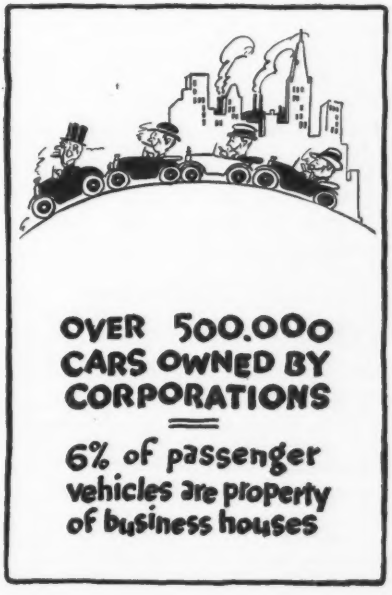
Business Houses Own Half Million Motor Cars

In addition to the thousands of motor vehicles operated by salesmen and registered in the name of the individual, there are over a half-million motor cars owned by business houses.

The National Automobile Chamber of Commerce recently checked 100,000 registration cars, taken at random in blocks of ten thousand from ten states in different parts of the Union.

Six per cent of the registrations checked were cards of motor cars owned by business houses. This ratio applied to the passenger cars registered indicates well over a half million owned by commercial concerns.

The ratio literally applied would give 650,000 motor cars, but allowance is made for duplications and for the 90,000 taxicabs in the U. S. which are grouped with motor cars in some of the state registrations.



Motor Vehicle Registrations for 53 Cities

Reports Received from 53 Out of 68 Cities of Over 100,000 Population.

(Through the courtesy of local Chambers of Commerce and automobile trade associations it is possible to present here city registrations for 1922. Where bus and taxi figures are not classified separately, the total is printed between the columns).

REGISTRATIONS IN CITIES HAVING OVER 100,000 POPULATION

City	Motor Cars	Motor Trucks	Taxicabs and Jitneys	Buses	Total Vehicles
Akron, Ohio.....	29,815	5,525	824	...	36,214
Albany, N. Y.....	10,000	5,807	475	...	16,282
Atlanta, Ga.....	16,200	4,000	9,000	29	26,951
Birmingham, Ala...	14,412	1,492	275	24	16,203
Boston, Mass.....	41,037	10,963	....	...	52,000
Bridgeport, Conn...	17,868	4,238	510	118	22,734
Buffalo, N. Y.....	40,000	10,000	 300		50,300
Chicago, Ill.....	175,000	30,000	5,000	500	210,500
Cincinnati, Ohio....	36,851	8,607	295	67	45,822
Cleveland, Ohio....	82,065	16,461	137	9	98,670
Columbus, Ohio....	32,577	5,432	....	...	38,009
Dallas, Texas.....	.....	.....	....	...	39,000
Dayton, Ohio.....	26,000	6,000	30	30	32,060
Denver, Colo.....	42,971	2,878	275	...	46,124
Detroit, Mich.....	148,424	21,178	300	81	169,983
Grand Rapids, Mich.	18,000	2,000	51	21	20,072
Hartford, Conn.....	11,750	2,800	200	12	14,762
Houston, Texas.....	.....	.....	....	...	32,710
Indianapolis, Ind...	47,000	9,400	500	60	56,960
Kansas City, Mo...	55,000	7,500	150	...	62,650
Los Angeles, Calif...	175,000	21,000	600	110	196,710
Lowell, Mass.....	10,000	2,000	20	...	12,020
Louisville, Ky.....	26,748	5,257	450	1	32,456
Memphis, Tenn.....	22,683	4,453	134	...	27,270
Milwaukee, Wis....	31,500	7,900	255	65	39,720

City	Motor Cars	Motor Trucks	Taxicabs and Jitneys	Buses	Total Vehicles
Minneapolis, Minn..	55,000	15,000	400	78	70,478
Nashville, Tenn....	11,090	2,910	155	15	14,170
Newark, N. J.....	45,000	5,000	217	435	50,652
New Bedford, Mass.	7,608	1,941		25.....	9,574
New Haven, Conn..	10,400	3,200	.....	.....	13,600
New Orleans, La....	21,258	7,218	.....	.....	28,476
New York, N. Y....	216,516	67,397	16,369	700	300,972
Norfolk, Va.....	8,513	1,780	127	92	10,512
Oakland, Calif.....	21,122	1,800	80	3	28,005
Omaha, Neb.....	25,000	3,000	300	55	28,355
Portland, Ore.....	37,351	5,773	.....	.....	43,124
Providence, R. I....	24,281	4,260	308	18	28,867
Reading, Pa.....	14,000	3,000	35	10	17,045
Richmond, Va.....	12,000	3,000	.....	30	15,030
Rochester, N. Y....	35,000	7,000	179	19	42,198
Salt Lake City, Utah	42,700	7,000	.....	.....	49,000
San Francisco, Calif.	67,844	5,616	.....	2,270	75,730
Seattle, Wash.....	53,000	7,000	.....	.....	60,000
Spokane, Wash.....	21,741	.....	96	9	21,846
Springfield, Mass...	11,105	980	179	30	12,294
St. Louis, Mo.....	76,763	14,409	230	375	91,777
Syracuse, N. Y.....	27,068	4,950		248.....	32,266
Toledo, Ohio.....	37,653	7,435	.....	.....	45,088
Washington, D. C..	43,509	6,723	.....	2,560	52,792
Wilmington, Del....	.....	.....	.....	.....	14,051
Worcester, Mass....	12,000	1,000	100	25	13,125
Yonkers, N. Y.....	.....	.....	.....	.....	10,000
Youngstown, Ohio..	21,515	3,519	.....	20	25,054

Tabulations Showing Relation of Motor Cars and Trucks to Area and Population of Cities

Cities Over 100,000 Having Most Motor Vehicles per Square Mile

City	Motor Vehicles per Sq. Mile
Dayton, Ohio	1,885
Detroit, Mich	1,867
San Francisco, Cal	1,803
Cleveland, Ohio	1,762
Reading, Pa	1,704
Dallas, Texas	1,695
Milwaukee, Wis	1,471
Toledo, Ohio	1,454
Akron, Ohio	1,448
Bridgeport, Pa	1,337
Rochester, N. Y	1,318
Wilmington, Del	1,277

Cities Over 100,000 Leading in Ratio of Persons per Motor Vehicle

City	Persons per Motor Vehicle
Los Angeles, Cal	3
Salt Lake City, Utah	3
Dallas, Texas	4
Houston, Texas	4
Indianapolis, Ind	5
Kansas City, Mo	5
Minneapolis, Minn	5
Seattle, Wash	5
Spokane, Wash	5
Syracuse, N. Y	5
Toledo, Ohio	5
Youngstown, Ohio	5

3,692,000 Motorists Among National Forest Visitors

(Figures from U. S. Forest Service)

State	Total No. of Visitors	Motorists	State	Total No. of Visitors	Motorists
Arizona	95,000	61,750*	New Mexico	67,000	43,550*
California	1,500,000	1,000,000	Oregon	425,000	324,000
Colorado	1,200,000	930,000	South Dakota	110,000	95,000
Idaho	96,000	62,400*	Southern States	163,000	105,950*
Michigan	50,000	48,000	Utah	112,000	72,800*
Minnesota	84,000	78,000	Washington	550,000	383,000
Montana	263,000	82,500	Wyoming	117,000	90,000
Nebraska	2,500	2,000			
Nevada	21,500	13,970*			
New Hampshire	500,000	300,000		**5,356,000**	**3,692,920**

*Estimated

Motor Cars Visiting National Parks, 1916-1922

12% Increase During Past Season

(Figures from Report of Director of National Park Service)

Year	No. of Cars	Year	No. of Cars
1916	29,358	1920	128,074
1917	54,692	1921	175,825
1918	53,966	1922	197,105
1919	97,721		

1,927 Cities Have Motor Campsites

193 in California; 113 in Illinois; 110 in Iowa

(Figures do not include National Parks and Forests or State Parks and Forests)

State	No. of Cities	State	No. of Cities	State	No. of Cities
Alabama	18	Louisiana	15	North Dakota	52
Arizona	14	Maine	11	Ohio	29
Arkansas	19	Maryland	5	Oklahoma	52
California	193	Massachusetts	11	Oregon	45
Colorado	57	Michigan	74	Pennsylvania	15
Connecticut	5	Minnesota	91	Rhode Island	
Delaware		Mississippi	8	South Carolina	5
District of Columbia		Missouri	62	South Dakota	76
Florida	36	Montana	107	Tennessee	13
Georgia	39	Nebraska	58	Texas	93
Idaho	22	Nevada	10	Utah	20
Illinois	133	New Hampshire	5	Vermont	7
Indiana	69	New Jersey	2	Virginia	8
Iowa	110	New Mexico	15	Washington	65
Kansas	105	New York	30	West Virginia	
Kentucky	10	North Carolina	12	Wisconsin	78
				Wyoming	23
Total					**1,927**

695,000 Motorists Visited National Parks in 1922 Touring Season

Average of 3.45 Persons per Car

(Figures from U. S. National Park Service)

	Total Visitors	Total Motor Tourists	Total No. of Cars
Hot Springs, Ark	106,164	5,000	1,450
Yellowstone, Wyo., Mont., & Idaho	98,223	61,507	18,253
Sequoia, Calif	27,514	25,264	7,886
Yosemite, Calif	100,506	64,566	19,583
General Grant, Calif	50,456	41,434	12,010
Mount Rainier, Wash	70,376	59,183	17,149
Crater Lake, Ore	33,016	31,042	9,429
Wind Cave, S. Dak	31,016	30,290	10,096
Platt, Okla	246,998	118,000	30,000
Mesa Verde, Colo	4,251	3,378	969
Glacier, Mont	23,935	10,595	2,416
Rocky Mountain, Colo	219,164	187,240	52,112
Grand Canyon, Ariz	84,700	25,470	7,890
Lafayette, Me	73,779	29,842	8,650
Zion, Utah	4,109	2,803	622
	1,174,207	**695,614**	**198,515**

Cars and Trucks Develop Suburban Areas

Motor Traffic and R. R. Business Have Unusual Growth on Long Island

(Because of the completeness of available statistics Long Island gives an unusually clear picture of the relationship of motor and rail transportation with the former as feeder to the latter. This island is in the suburban districts of New York, two of its counties, Kings and Queens, being part of the Greater City. The Long Island railroad is the only steam road serving this territory which is 125 miles long and about 20 miles wide.

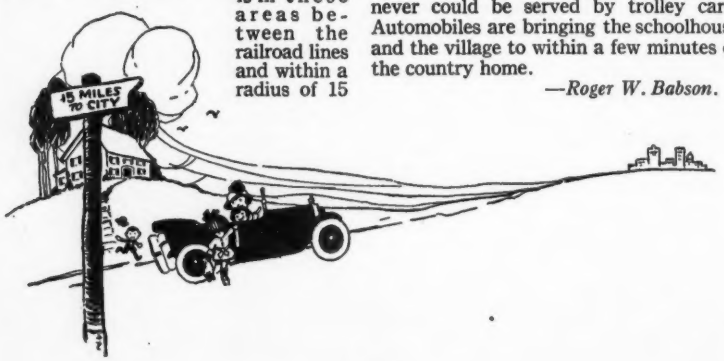
Three main branches of the road extend through the island. Motor cars and trucks have built up the residential sections for several miles around each railway station thereby increasing the volume of L. I. R.R. business.)

	Passengers carried by Long Island R.R. System	Motor cars registered*	Freight Tonnage carried by L. I. R. R.	Motor Trucks registered*	New Dwellings Constructed
1917.....	50,796,028	11,829	5,271,509	2,482	3,863
1918.....	55,486,000	19,710	5,798,876	3,834	1,153
1919.....	64,067,541	24,309	6,916,886	4,574	7,911
1920.....	72,743,820	24,709	5,886,969	5,430	7,531
1921.....	75,506,045	32,360	5,572,679	7,566	16,197
1922.....	79,656,891	41,111	6,028,003	10,245	23,336

*For area not in Greater New York.

Babson Predicts Increasing Movement to Suburbs

The city no longer has a wall around it. Railroads made the first breach, but the railroads opened up only narrow strips along their lines radiating from the city. In most cases the railroads followed the valleys and lowlands, which are not the best building location. Between these lines are miles of land much more desirable for building but which have been inaccessible to the commuter because men had no means of getting to the train. It is in these areas between the railroad lines and within a radius of 15 or 20 miles of the cities, which the motor car and good roads have opened up, that the most spectacular development in new building should take place!



The motion picture has put the local town hall on a par with the city theatre. The motor truck is giving the rural or suburban dweller nearly the same freight and express facilities as has the city. Motor bus lines are covering routes which never could be served by trolley cars. Automobiles are bringing the schoolhouse and the village to within a few minutes of the country home.

—*Roger W. Babson.*

267,000 Children Ride to School in Motor Buses

1,838 New Consolidated Schools in 1922, Total of 12,536 Reported — 568,000 Pupils Transported at Public Expense, 47% Carried in Motor Vehicles.

(Thousands of rural communities now have educational advantages equal to the the best that the city affords, through consolidation of one-room school houses into central buildings.

The following figures are totals reported by State Superintendents of Education to the National Automobile Chamber of Commerce. Where no state total was available, the total of reports from the County Superintendents is used. As about 50% of the counties in these states did not reply, and are not included, the figures are presumably well under (perhaps 25% under) what the totals would be if all the data were obtainable.)

State	No. of Cons. Schools	No. of Schools Cons. 1922	Total Pupils Transp. at Public Expense	Total Pupils Transp. by Motor Bus	State	No. of Cons. Schools	No. of Schools Cons. 1922	Total Pupils Transp. at Public Expense	Total Pupils Tranps. by Motor Buses
Ala.†.....	175	59	7,748	6,660	Neb..... *	105	....	4,200	3,570
Ariz.†.....	8	1	223	223	Nev.†.....	7	....	434	434
Ark.....	170	22§	1,730§	1,630§	N. H.†.....	12	1	623	215
Calif.†.....	94	12	8,234	8,234	N. J.....	81	....	31,766	8,000
Col.....	165	13	11,400	10,200	N. Mex.†.....	8	3	505	490
Conn.†.....	39	5	2,156	684	N. Y.†.....	157	42	2,603	2,202
Del.....	.....	.....	.....	.....	N. C.†.....	278	117	20,128	18,800
Fla.....	100	22§	9,360	4,139§	N. Dak.....	531	13	25,500	2,591§
Ga.....	420	162	16,350	10,495§	Ohio†.....	408	71	39,730	24,424
Ida.†.....	13	.....	2,924	115	Okla.†.....	305	54	20,000	14,560§
Ill.†.....	89	18	1,560	1,538	Ore.....	77	37	4,600§	1,635§
Ind.....	946	350	79,780	36,875	Pa.†.....	325	115	12,000	3,000
Iowa.....	355	7§	40,000	15,000§	R. I.†.....	3	2	50	25
Kan.....	72	11	22,240§	3,961	S. C.†.....	223	11	581	415
Ky.....	68	16	4,000	3,000	S. Dak.....	181	2	5,340	2,208§
La.....	1,160	70	25,295	8,762§	Tenn.....	482	66	8,366	1,770§
Maine.....	109	16§	2,500§	495§	Tex.....	757	115	7,112	1,170§
Md.†.....	34	26	1,975	1,750	Utah†.....	62	1	3,033§	275§
Mass.....	2,229	7§	28,000	7,000	Vt.†.....	54	5	1,046	275
Mich.....	38	15	4,300	3,000§	Va.†.....	217	73	6,940	5,900
Minn.....	315	31	25,000	10,000	Wash.....	314	82§	7,350	6,000*
Miss.....	770	120	45,000	25,000	W. Va.†.....	415	16	652	242§
Mo.†.....	149	22	21,720	9,194	Wis.†.....	21	4	700	14
Mont.....	86	1§	2,000§	1,710§	Wyo.†.....	18	2	1,405	1,105
					Total.....	12,536	1,838	568,159	267,819

†All figures in this state are totals of reports received from county (or district) superintendents.

*Estimated.

§Not reported in State records. Figure given is total of reports from county (or district) Superintendents.

3,500,000 Motor Vehicles on Farms

3,200,000 Motor Cars—300,000 Motor Trucks

(The figures as given above are estimates. The last actual count of motor vehicles on farms was by the U. S. Bureau of the Census, as of December 31, 1919, totaling 2,285,681 at that time. If one assumes that rural registration has increased at the same rate as total registration since 1919, the total on farms would be over 3,700,000, but some allowance should be made for the poor condition of the farm market in 1921. Motor truck figures from 40% of the counties would indicate a total truck registration of 348,000, but here again allowance should be made for the tendency that the counties most interested in trucks are the ones most likely to be included in the 40% reporting. The following table includes the only states which give a rural registration figure for 1922.)

	Cars	Trucks		Cars	Truck
Alabama	.....	2,461	North Dakota	64,050	1,980
Arkansas(*a*)	20,000	5,000	New Hampshire(*d*)	14,090	.....
Iowa(*b*)	176,003	10,337	Oklahoma	.....	1,743
Kansas(*c*)	114,719	5,402	Pennsylvania(*e*)	132,692	21,791
Nebraska	93,857	5,935	Rhode Island(*f*)	4,000	.....
New York	.....	9,317			

(*a*) Est. by Prof. D. G. Carter, University of Arkansas.
(*b*) As of July 1, 1922.
(*c*) As of March 1, 1922.
(*d*) Estimated by Commissioner of Motor Vehicles.
(*e*) Figure from State Department of Agriculture.
(*f*) Estimated by R. I. State College.

40% of Cars on Farms in South

(The following table of registrations in the 13 Southern States is compiled by the Southern Ruralist, the figures being as of the first quarter 1922.)

Farm-owned cars		672,443	40% of total
Cars in towns of	1,000–5,000	377,536	23% " "
" " " "	5,000–25,000	263,939	16% " "
" " " "	25,000–100,000	171,555	10% " "
" " " "	100,000–and over	181,987	11% " "

Motor Travel Grows on Metropolitan Ferries

(The following tabulation of vehicular traffic between New York City and New Jersey points shows an increase of 2 to 4 per cent over 1921 on each of the ferry groups. Figures are by New York State and Tunnel Commission and New Jersey Interstate Bridge and Tunnel Commission.)

AVERAGE WEEK-DAY TRAFFIC, FIVE FERRY GROUP (a)

Year	Total Yearly Traffic	Horse Drawn No.	Horse Drawn % Total	Motor Driven No.	Motor Driven % Total	Total Traffic	Per Cent Increase
1921	3,889,994	4,532	39.3	7,008	60.7	11,540	0.3
1922	4,220,717	4,575	37.2	7,727	62.8	12,302	6.6

AVERAGE WEEK-DAY TRAFFIC, SIX FERRY GROUP (b)

1921	2,498,457	2,629	36.9	4,498	63.1	7,127	0.8
1922	2,903,881	2,842	32.5	5,903	67.5	8,745	22.7

AVERAGE WEEK-DAY TRAFFIC, FOUR FERRY GROUP (c)

1921	2,584,691	455	6.7	6,329	93.3	6,784	25.6
1922	3,007,538	313	4.0	7,474	96.0	7,787	14.8

(a) Downtown group.
(b) Ferries at West 23rd St. exc. C. R. R. of N. J. at Liberty St. and West Shore R. R. at Cortland St.
(c) Ferries at 42nd St. and above.

40% of Counties in U. S. Report 138,308 Trucks on Farms

(Through the assistance of the county agents in the respective states the National Automobile Chamber of Commerce has made the following survey of trucks on farms. Reports were received from all states but Arkansas, which had 1,027 *trucks on farms in the* 1919 *census. If the* 40% *of the total counties in the U. S. which responded are typical, the total number of motor trucks on farms is* 348,000. *It is probable, however, that there was a tendency for those counties having the more trucks to be included in 40% reporting, so that the actual total on farms may be around* 300,000).

	Number of Counties Surveyed	Number of Farms Surveyed	Number of Trucks on Farms	Number of Counties Stating Need for More Trucks	Number of Counties Preferring 1 to 2 Ton Trucks
Alabama	67	256,060	2,416	60	58
Arizona	7	9,590	589	5	5
California	13	24,729	1,463	7	10
Colorado	19	25,412	3,650	13	16
Connecticut	4	10,519	3,900	3	3
Delaware	2	4,300	200	2	2
Florida	16	21,252	3,953	13	14
Georgia	80	117,131	7,297	59	71
Idaho	18	33,864	1,034	14	13
Illinois	27	59,255	2,694	18	25
Indiana	41	80,531	4,573	23	35
Iowa	42	80,415	7,318	16	39
Kansas	30	50,068	4,234	15	29
Kentucky	34	86,560	223	17	18
Louisiana	17	28,172	1,048	15	13
Maine	8	.....	337	.....	.....
Maryland	21	.....	2,817	.....	20
Massachusetts	7	11,546	2,905	6	6
Michigan	36	81,495	2,572	31	31
Minnesota	38	80,021	3,325	27	32
Mississippi	18	27,650	1,518	15	28
Missouri	114	.....	13,803	.....	.....
Montana	18	34,625	3,308	15	16
Nebraska	16	25,009	1,835	7	16
Nevada	4	1,588	247	2	4
New Hampshire	8	15,772	535	7	5
New Jersey	14	18,129	4,360	11	13
New Mexico	19	17,133	1,320	12	16
New York	42	50,713	6,118	31	29
North Carolina	41	94,377	2,138	30	39
North Dakota	11	16,507	998	6	11
Ohio	34	91,862	4,976	27	31
Oklahoma	42	114,192	2,563	34	39
Oregon	14	22,567	1,630	6	10
Pennsylvania	56	186,863	12,631	43	50
Rhode Island	2	3,500	1,350	1	1
South Carolina	14	44,800	1,982	11	12
South Dakota	18	26,003	2,883	10	15
Tennessee	24	.....	772	11	20
Texas	48	86,839	4,079	32	46
Utah	12	11,283	310	8	9
Vermont	10	22,483	1,795	5	10
Virginia	37	70,589	1,937	25	33
Washington	12	17,763	2,014	7	10
West Virginia	29	48,360	1,435	17	25
Wisconsin	27	72,907	4,761	18	23
Wyoming	7	4,646	417	5	3
Total	**1,218**	**2,187,080**	**138,308**	**740–61%**	**954–78%**

NOTE: Trucks on farms figures for a few states which report or estimate total for all counties are given in tabulation ot 3,500,000 Motor Vehicles on Farms on the preceding page.

How to Keep Motor Truck Operation and Cost Records

(Note.—A booklet "National Standard Truck Cost System" describing forms for motor truck operation and cost may be obtained free of charge from the Motor Truck Committee, National Automobile Chamber of Commerce, 366 Madison Avenue, New York. Below is shown a specific instance of a 3½-ton truck in the general trucking line).

Owner—Red Line Transfer Co. **Business**—General Trucking
Address—Des Moines, Ia. **Truck Capacity**—3½-Ton

OPERATION RECORDS

A—Total Period		B—Daily Averages	
1. Period covered	1 Yr.	12. Round Trips	.....
2. Days operated	275	13. Deliveries—Pickups	.....
3. Days out for Repairs	.....	14. Loads—Out	.....
4. Total Round Trips	.....	15. Loads—In	.....
5. Deliveries—Pickups	.....	16. Total Loads	.....
6. Loads—Out	.....	17. Miles Traveled	40
7. Loads—In	.....	18. Miles per Round Trip	.....
8. Total Loads	.....	19. Loads per Trip	.....
9. Miles Traveled	11,000	20. Unit Miles	.....
10. Gasoline—Gals. used	1,833	21. Miles per Gal. Gas	6
11. Cyl. Oil—Pts. used	275	22. Miles per Pt. Oil	40

COST RECORDS

C—Investments		E—Variable Charges—Period	
23. Chassis	$4,180.00	40. Fuel at 23 cts. Gal	$ 421.59
24. Body	662.31	41. Cyl. Oil at 7½ cts. Pt	20.63
25. Cab	.....	42. Tires—11,000 Miles	264.00
26. Painting	.....	$360.36—15,000 Miles Life	
27. Special Equipment	.....	43. Depreciation—11,000 Miles	896.50
28.	.....	$4,481.95—55,000 Miles Life	
29.	.....	44. Maintenance and Repairs (Est.)	165.00
30. Total Investment	$4,842.31	45. Driver's Wages	1,352.46
31. Tire Value	360.36	46. Total Variable Charges	3,119.72
32. Total less Tires—to be Depreciated	$4,481.95	47. Total Fixed Charges	1,202.43
		48. **Total Operation Cost**	**4,322.15**

D—Fixed Charges—Yearly		F—Daily Costs	
33. Interest on Total Inv. at 8%	$232.43		
34. Taxes and Licenses	100.00	49. Cost per Day Operated	$ 15.72
35. Insurance	250.00	50. Cost per Mile Traveled	.393
36. Garage Expenses	120.00	51. Cost per Unit Hauled	.....
36A—Administrative Overhead	500.00	52. Cost per Unit—Mile	.....
37. Total Per Annum	1,202.43	53. Repair Cost per Mile—Est	.015
38. Total per Month	100.20	54. Cost per Day—without Overhead	14.26
39. Total for Period	1,202.43	55. Cost per Mile—without Overhead	.356

How to Figure

Ton-Mile Costs and the Making of Rates

Ton miles are the units for measuring truck performance. The principle of ton-mileage may be applied to any class of motor truck haulage whether the units are baskets, bundles, kegs, cases or thousands of feet of lumber. For the concern which does not do its hauling in tons the same measure of haulage may be had by simply substituting for the ton the unit best suited to measure the delivery system. Thus instead of the ton-mile we have the package-mile, multiplying the number of packages delivered by the number of miles covered in delivering them, or the keg-mile or the case-mile.

EXAMPLES:

(1) Actual ton-mileage—5-ton load carried 5 miles, returning empty. (5 tons x 5 miles) plus (0 tons x 5 miles) = 25 ton-miles.

(2) 5-ton load carried 5 miles, returning with 5 tons. (5 tons x 5 miles) plus (5 tons x 5 miles) = 50 ton-miles.

(3) Truck starts on a round trip of 22 miles loaded with 5 tons. After 2 miles it delivers 1 ton; travels 3 miles further and delivers 2½ tons; 4 miles further and delivers ½ ton; 2 miles further and delivers 1 ton, when the truck is empty. The truck is then loaded with 5 tons and returns 11 miles.

Miles	Tons	Ton-miles
2	5	10
3	4	12
4	1½	6
2	1	2
11	5	55
22	**Total.....**	**85 ton-miles**

Commercial Ton-mileage:—

(1) 5-ton load carried 5 miles, returning empty.
$$\frac{5 \text{ tons} \times 10 \text{ miles}}{2} = 25 \text{ commercial ton-miles.}$$

(2) 5-ton load carried 5 miles, returning full.
$$\frac{10 \text{ tons} \times 10 \text{ miles}}{2} = 50 \text{ commercial ton-miles.}$$

(3) Same as above.
$$\frac{10 \text{ tons} \times 22 \text{ miles}}{2} = 110 \text{ commercial ton-miles.}$$

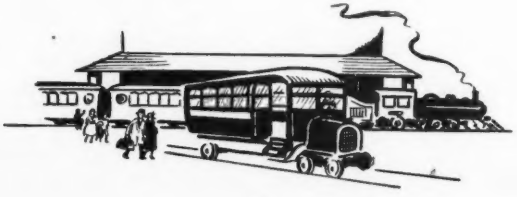
Motor Truck Solves Farmers' Transportation Problems

The 1-ton motor truck has solved the transportation problems of the farmers of Lancaster County, Pennsylvania's great tobacco growing section. As soon as the grower has a ton or more of tobacco ready, it can be loaded and in a few hours is at the packer's warehouse. This eliminates the old custom of ordering a car on the station siding on a certain day at which time everyone was supposed to haul his crop to the car and load it, regardless of the weather. In cases where the warehouse had no siding, the grower was further expected to be on hand to unload the car, haul his crop to the warehouse and wait his turn to unload.

The dairy farmers also profit from the development of highway transport in the shipping of milk in thermos tanks mounted on motor trucks from the cooling station in Lancaster County to Philadelphia. By this method, the milk is handled more rapidly than by shipping in refrigerator rail car; the farmer does not have to make such early deliveries to the cooling station; and the milk gets to the consumer 24 hours earlier than by the old method.

40 Railroads Use Flanged Wheel Motor Buses On Short Lines

Name of Railroad	State	Distance
Atchison & Topeka	.....	.....
Aberdeen & Rockfish	North Carolina	60 Miles
Anaconda Copper Mining Company	Montana	.....
Atlantic & Western	North Carolina	25 "
Baltimore & Ohio	Maryland	.....
Canadian National Railways	Canada	.....
Carrollton & Worthville	Kentucky	10 "
Central West Virginia & Southern	West Virginia	32 "
Chesapeake Western	Virginia	41 "
Chicago, Burlington & Quincy	.....	.....
Cleveland, Cincinnati, Chicago & St. Louis	Indiana	10 "
Fonda, Johnstown & Gloversville	New York	10 "
Gilmore & Pittsburgh	Montana	100 "
Great Northern	Oregon	35 "
Greenbriar & Eastern	West Virginia	10 "
Hetch Hetchy	California	69 "
Kanawha Glen Jean & Eastern	West Virginia	14 "
Leavenworth & Topeka	Kansas	46 "
Lewisburg, Milton & Watsontown Ry	.....	.....
Mississippi River & Bonne Terre	Missouri	64 "
Mt. Hood	Oregon	22 "
Morristown & Erie	New Jersey	10 "
Narragansett Pier	Rhode Island	8 "
Columbia & Nehalem River	Oregon	35 "
Nevada-California-Oregon	California	170 "
New Mexico Central	New Mexico	116 "
New Orleans & Lower Coast	Louisiana	60 "
New York, New Haven & Hartford	Connecticut	104 "
Northern Pacific	Oregon	35 "
Palatina, Lake Zurick & Wauconda	Illinois	16 "
Pittsburgh & Shawmut	Pennsylvania	103 "
Pittsburgh & Susquehanna	Pennsylvania	13 "
Sewell Valley	West Virginia	40 "
Stone Harbor	Virginia	4 "
Tennessee, Alabama & Georgia	.....	.....
Tonopah & Gold Field	Nevada	31 "
Union Transportation Company	New Jersey	25 "
Virginia & Truckee	Nevada	31 "
Washington & Old Dominion Railway	Virginia	52 "
Winchester & Western	West Virginia	40 "



Comparison of Operating Costs of Light Steam Trains and Gasoline Rail Cars in Local Passenger Service

(From Railway Review)

	Steam Train R. R. "A"	Rail Car AC‡ Model	Rail Car AB* Model	Steam Train R. R. "B"	Rail Car AC Model	Rail Car AB Model
Daily miles	150	150	150	70	70	70
Crew	5	2	1	5	2	1
Seating capacity	120B*	36B*	31	90B*	36B*	31
Wages	$46.00	$17.50	$10.00	$34.42	$17.50	$10.00
Fuel at 28c a gal	41.25	5.25	4.20	32.20	2.45	1.96
Locomotive or chassis repair	32.75	2.00	2.00	26.50	.95	.95
Train supplies and expenses	6.00	2.00	2.00	3.00	1.75	1.75
Locomotive or chassis supplies	2.65	.56	.50	1.68	.45	.35
Lubrication	.60	.60	.18	.35	.30	.13
Round house	7.00	.80	.80	8.68	.80	.80
Car or body repairs	6.75	3.00	2.00	2.80	1.50	1.50
Total per day	**$143.00**	**$31.71**	**$21.68**	**$109.63**	**$25.70**	**$17.44**
Cost per mile	.95	.21	.14	1.56	.38	.25
Cost per seat per day	1.18	.88	.70	1.10	.71	.56
Cost per seat per mile	.0079	.0058	.0047	.0173	.010	.0080

B* Indicates that baggage space is provided.

*AB Model—Indicates gasoline rail car weighing about 11,000 lbs. and costs approximately $8,500 of which $3,000 represents the estimated cost of body. Speed, 30 miles per hour.

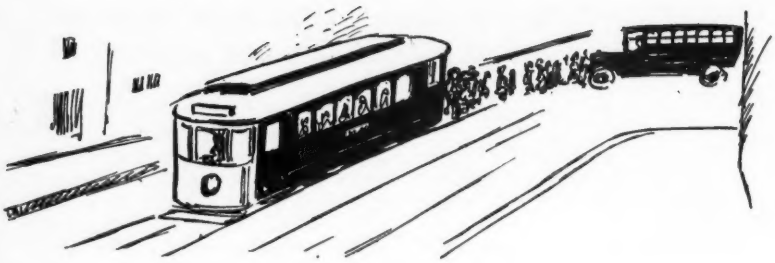
‡AC Model—Indicates rail model which corresponds in motive power to a five-ton truck.

Motor Cars Help Short Roads

Many Lines Find the Cost is 10 to 25 Cents a Mile Compared with 65 Cents to $1 for Steam Trains

American Short Line Railroad Association has found that many lines operate motor cars at a cost of from 10 to 25 cents a mile, including all charges, as compared with a cost of from 65 cents to $1 to the train mile in the operation of steam trains. The extremely low cost of 19 cents a mile covers the operation of smaller cars seating 20 to 25 passengers, and served by one man. Larger cars, seating 45 to 55 passengers and carrying baggage, are operated by two men, and the average cost, including all charges, is 25 cents a mile.

The association is in possession of the records of certain motor cars which have traveled over 300,000 miles. On one of its lines there is now being operated a car that has run more than 400,000 miles and is still in good condition. The cost of upkeep has been surprisingly low.—*Wall Street Journal.*



60 Electric Lines Operate Motor Buses

(Tabulation from Bus Transportation)

Name of Road	Length in Miles	No. of Buses	Average Seating Capacity	Daily Mileage Scheduled	Average Passenger Traffic per Month
NEW ENGLAND STATES					
CONNECTICUT					
The Connecticut Co.					
Bridgeport Division	2.10	1	18	167	.....
Hartford Division	8.03	4	53	457	.....
New Haven Division	15.40	4	37	926	.....
Stamford Division	3.40	2	21	465	.....
Waterbury Division	4.75	7	26	440	.....
Danbury & Bethel St. Ry. Co.	10.85	5	42	435	21,600
MASSACHUSETTS					
Boston Elevated Ry. Co.	1.25	3	25	.....	.....
Connecticut Valley St. Ry. Co.	3.14	3	19	240	15,000
Eastern Massachusetts St. Ry.	3.07	3	25	210	18,000
Holyoke St. Ry.	1.50	2	21	100	.....
Northern Massachusetts St. Ry.	1.00	1	15	.....	.....
RHODE ISLAND					
United Electric Rys. Co.	29.28	13	120	1.848	140,350
EASTERN STATES					
DISTRICT OF COLUMBIA					
Washington Ry. & Elec. Co.	5.35	8	42	812	42,279
Washington-Virginia Ry. Co.	.60	2	23	60	30,000
MARYLAND					
Baltimore Transit Co.	13.12	40	133	2,097	251,000
NEW JERSEY					
Public Service Ry. Co.	1.50	4	20	.....	.....

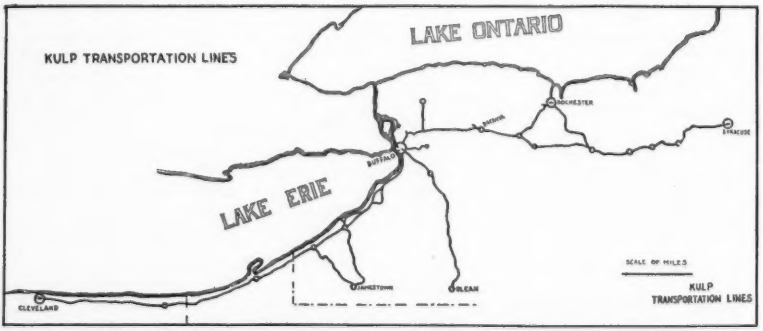
Name of Road	Length in Miles	No. of Buses	Average Seating Capacity	Daily Mileage Scheduled	Average Passenger Traffic per Month
NEW YORK					
Jamestown St. Ry. Co	3.10	3	25	200	.....
Niagara Gorge Bus Line	.....	5	25	.....	.....
Orange County Tract. Co	.....	7	25	.....	.....
PENNSYLVANIA					
Citizens Transit Co	5.10	2	17–27	152	12,000
Schuylkill Transportation Co	21.00	6	58	640	.....
CENTRAL STATES					
ILLINOIS					
Chicago, No. Shore & Mil. Elec.	32.50	3	28	520	.....
Rockford City Tract. Co	5.14	4	75	662	33,757
INDIANA					
Gary St. Ry. Co	5.80	5	20	694	30,350
IOWA					
Dubuque Electric Co	1.62	6	14	252	26,700
MICHIGAN					
Houghton St. Bus Co	11.90	3	18	235	40,000
Michigan United Railways—					
Jackson Lines	.....	2	48	.....	.....
Lansing Lines	.....	3	23	.....	.....
Muskegon Lt. & Trac. Co	.....	.....	.....	.....	.....
MINNESOTA					
Twin City Rapid Transit Co	1.60	1	17	170	9,000
MISSOURI					
St. Joseph Ry. Lt. Ht. & Pwr Co.	1.00	1	6	.....	4,500
Springfield Traction Co	10.50	7	100	1,150	91,902
OHIO					
Hocking-Sunday Creek Trac. Co.	1.50	1	29	54	.....
Northern Ohio Tract. & Light Co.—					
Akron Lines	9.08	14	100	1,293	135,000
Canton Lines	.....	3	25	.....	.....
Pennsylvania-Ohio Elec. Co	15.00	5	18	1,000	.....
Youngstown Municipal Ry	.....	7	.....	.....	.....
WISCONSIN					
Eastern Wisconsin Elec. Co	29.40	2	16	235	.....
Wisconsin Motor Bus Lines	487.60	36	260	4,844	.....
Manitowoc & Northern Tr. Co	7.00	2	17	224	.....
Wisconsin Gas & Electric Co	7.20	6	24	453	.....
SOUTHERN STATES					
ARKANSAS					
Intercity Terminal Ry. Co	1.80	12	52	352	92,850

(Tabulation continued on following page)

60 Electric Lines Operate Motor Buses

(Tabulation continued from preceding page)

Name of Road	Length in Miles	No. of Buses	Average Seating Capacity	Daily Mileage Scheduled	Average Passenger Traffic per Month
WESTERN STATES					
CALIFORNIA					
Bakersfield & Kern Elec. R. R.	.....	5	12	.....	.....
Fresno Trac. Co.	.....	2	15	74	8,250
Pacific Gas & Elec. Co.	.....	4	25	.....	.....
Pacific Elec. Land Co.	16.10	9	62	.....	24,316
San Francisco-Oakland Terminal Railways—	1.50	4	18	.....	.....
San Francisco Municipal Rys.	4.83	8	38	360	81,930
Santa Barbara & Sub. Ry. Co.	.....	6	.....	.....	.....
Stockton Elec. Rys.	.....	3	.....	.....	.....
San Jose Railroads	.....	2	.....	.....	.....
San Diego Elec. Ry. Co.	.....	4	.....	.....	.....
KANSAS					
Salina St. Ry. Co.	.....	.....	.....	.....	.....
NEW MEXICO					
City Elec. Co.	8.00	5	17	.....	.....
Albuquerque	2.50	.....	.....	.....	.....
OKLAHOMA					
Okmulgee Trac. Co.	3-4	6	.....	.....	.....
Tulsa St. Ry. Co.	2.50	13	100	.....	120,000
TEXAS					
Ft. Worth Auto Bus Co.	4.90	8	20	.....	.....
WASHINGTON					
Pacific Northwest Trac. Co.	44.00	7	14-18	860	14,750
Pacific Traction Co.	32.00	.....	.....	.....	.....
Seattle Municipal Ry.	11.40	6	72	419	46,660



Routes of the Kulp Transportation Lines which handle all the l. c. l. freight for the New York Central R. R. at Buffalo, N. Y., an example of the current trend of motor truck development in co-operation with the railroads.

Example of N. A. C. C. Standard Caution Plate

For Motor Trucks

MAXIMUM SPEED 16 MILES PER HOUR. DO NOT EXCEED. THIS VEHICLE, WHEN TESTED AT THE FACTORY, SHOWED A BRAKE CAPACITY WHICH ENABLED THE DRIVER TO STOP IT, WHEN LOADED TO ITS STATED CAPACITY AND WHEN RUNNING AT ITS MAXIMUM STATED SPEED IN 40 FEET ON A DRY, HARD LEVEL ROAD. NOTE: CHASSIS WEIGHT INCLUDES COMPLETE CHASSIS, FRONT FENDERS, STEP, DRIVER'S SEAT, TOOLS, LAMPS, HORN, LICENSE BRACKETS, NORMAL QUANTITY OF FUEL, LUBRICANT AND COOLING MEDIUM; BUT WITHOUT DRIVER, BODY, AUXILIARY POWER DEVICES OR EQUIPMENT.	NAME AND ADDRESS OF MANUFACTURER MADE IN U.S.A.	CHASSIS NUMBER CAUTION OVERLOADING OR OVER SPEEDING WILL VOID YOUR WARRANTY.

MAXIMUM WEIGHTS	LBS.
CHASSIS (SEE NOTE)	6,300
BODY, LOAD & EQUIP.	8,000
GROSS WEIGHT	14,300
FRONT AXLE (GROSS)	6,000
REAR AXLE (GROSS)	12,000

Etched on 16 B. & S. gauge rolled brass, with letters recessed and filled with red and black enamel.

To be Incorporated in Caution Plate when Used on Electric Trucks:

"Chassis weight includes running gear, motor, battery, cradle, driving and control mechanism, wiring, housing, tools, lamps, horn, license brackets, charging plug and cable; but without driver, battery, body, auxiliary power devices or equipment."

Note—The example given above shows how to fill in the figures. They should be stamped by hand with steel dies, and the plates should be completely filled in by the manufacturer and attached to each chassis before it leaves the factory. The center on the plate may be used by the manufacturer for model, designation, type, size or tonnage rating of chassis, if he so desires.

Speed Rating—The figures given in the table headed Standard Speed Ratings for Motor Trucks should be recognized by the manufacturer as the maximum and not exceeded under any condition. Manufacturer should stamp on the truck caution plate the actual maximum speed with load for which the truck was built and beyond which the truck is not guaranteed.

Chassis Weight—This is the weight of the chassis as built by each manufacturer and may vary with wheelbase, frame length, tire equipment, etc. Manufacturer should weigh each individual chassis equipped according to note on the plate, defining chassis weight. This actual chassis weight should be stamped on the plate and plate attached to the chassis before chassis leaves the factory.

Front Axle Gross.—This is the maximum weight which manufacturer will allow to be concentrated on the front wheels of the truck. It will depend largely on the tire equipment and factors of safety contained in the axles, wheels, springs and frame.

Rear Axle Gross (Weight)—This is the maximum weight which the manufacturer will allow to be concentrated on the rear wheels of the truck fully loaded. It will depend largely on tire equipment and factors of safety in the axle, wheels, springs and frame.

Gross Weight.—This is the total overall weight of chassis, body, load and equipment. This gross weight may or may not be the sum of the front and the rear axle gross weights, dependent upon the allowance which the manufacturer wishes to make for the variation in load distribution, but in either case this is the most important weight on the plate, and it is the basis on which motor trucks will be rated in the near future.

Body, Load and Equipment.—This is the difference between the gross weight and the chassis weight and should be stamped by the manufacturer at the time the chassis leaves the factory. In the case of electric trucks, storage battery will be included in this weight. The weight of the load is purposely lumped with the weight of the body and the weight of the equipment, and it will be necessary for the owner of the truck to actually weigh the truck after body and equipment have been mounted, and to subtract this tare weight from the gross weight in order to determine the freight load or carrying capacity of his vehicle. Most of the States require that the weight of the truck light, its capacity and its gross weight should be painted on the sides of the body. In other words, the truck owner will not be able to determine the actual capacity of his truck until he has determined the actual weight of the body, and the equipment mounted on the chassis.

Brake Capacity.—This should be determined by the manufacturer in the case of each individual chassis before it leaves the factory. A reasonable allowance should be made for variation in brake

(Continued on following page)

DATA ON N. A. C. C. STANDARD CAUTION PLATE

(*Continued from preceding page*)

adjustment. This information is furnished to assist law enforcement officers in checking up operation and adjustment of brakes. All figures used in the above plate are for purposes of illustration only. These plates should be approximately 10½" long and 3½" wide and should be riveted permanently to the chassis at some point where they can be readily seen, but from which it will never be necessary to remove them.

Note.—Plate once attached to chassis should never be removed unless chassis weight is increased or decreased by changes in tires, wheels, springs, axles or frame. In case chassis weight is materially altered after chassis leaves the factory, a new plate should be attached to chassis frame with the corrected chassis weight.

Motor Truck Standards of the N. A. C. C.

(*Adopted January*, 1923)

Gross Weight, Chassis, Body and Freight Load	Speed, Miles per Hour
Pneumatic tires up to 28,000 lbs	25
Solid rubber tires, up to	
4,000 lbs	25
8,000 "	20
12,000 "	18
16,000 "	16
20,000 "	15
24,000 "	15
26,000 "	15
28,000 "	15

Note.—The speed ratings should be recognized by the manufacturer as the maximum and not exceeded under any conditions. The manufacturer should stamp on the truck caution plate the actual maximum speed with load for which the truck is built and beyond which the truck is not guaranteed.

STANDARD BODY WEIGHT ALLOWANCES FOR MOTOR TRUCKS

Load Tons	Body Weight Allowance Pounds
1 1½	1,200
2 2½	1,500
3 3½ 4	2,000
5 ton and over	2,500

Note.—Weights of bodies, whether built by the vehicle manufacturer or by a body builder to the order of the purchaser, should be kept within these allowances.

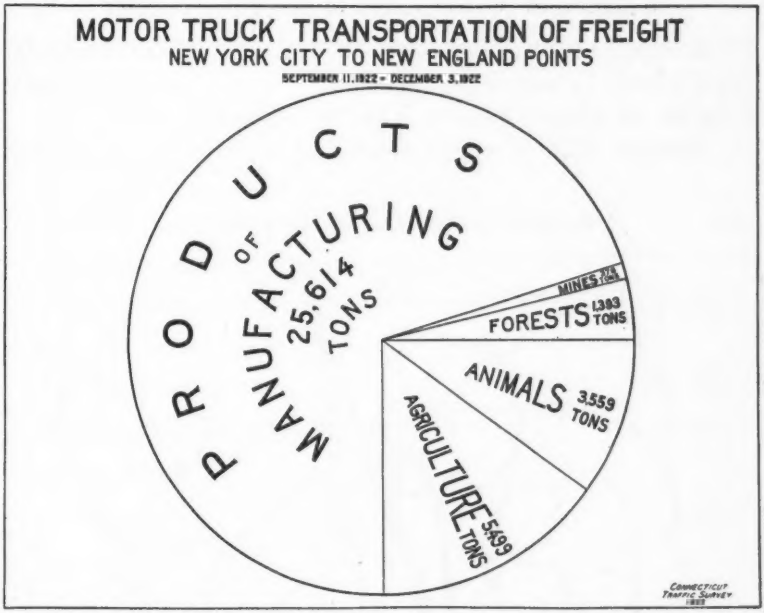
STANDARD FRAME WIDTHS AND LENGTHS FOR COMMERCIAL VEHICLES

Frame Width, either 36 or 42 inches, for all sizes of commercial vehicles, measured back of seat.

Frame Length, back of seat, to be in full multiples of feet and half feet from 4 to 18 feet, thus:

Feet	Inches	Feet	Inches	Feet	Inches
4 (Equiv. to)	48	9½ (Equiv. to)	114	13 (Equiv. to)	156
5 " "	60	10 " "	120	13½ " "	162
6 " "	72	10½ " "	126	14 " "	168
7 " "	84	11 " "	132	15 " "	180
8 " "	96	11½ " "	138	16 " "	192
8½ " "	102	12 " "	144	17 " "	204
9 " "	108	12½ " "	150	18 " "	216

Note.—The standard frame lengths as adopted are independent of chassis load capacity.



It will be noted from the above chart that motor truck haulage in lower New England is primarily concerned with manufacturing, as might be expected in a territory containing a large number of industrial cities.

The data above is based on a three months survey at fifty-six stations where each station was checked one day each month.

The investigation, and the chart and data, are the work of the U. S. Bureau of Public Roads in collaboration with the Connecticut Highway Department.

Stevenson on Highways

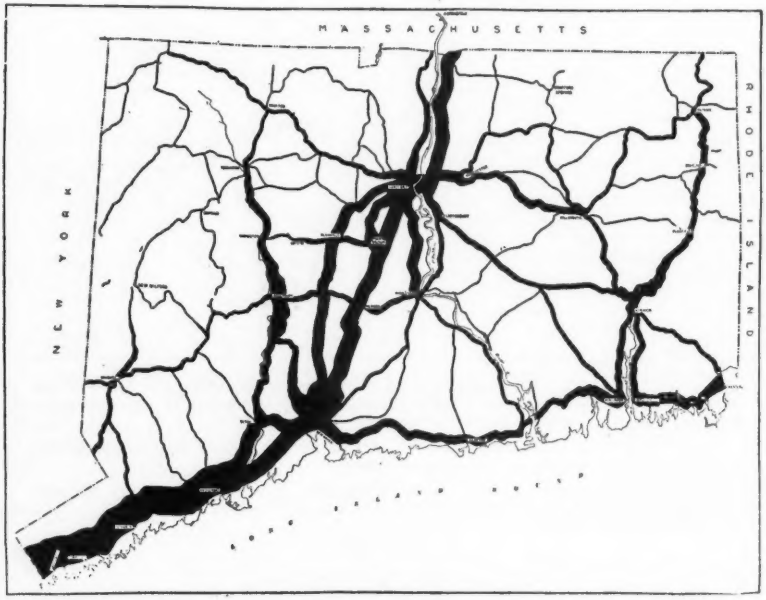
(*To the Samoan Chiefs on the Opening of the Road of Gratitude*).

"I wish every chief in these islands would turn to, and work, and build roads, and sow fields, and plant food trees, and educate his children, improve his talents—not for the love of Tusitala, but for the love of his brothers, and his children, and the whole body of generations yet unborn. Chiefs! On this road that you have made many feet shall follow. . . . Our road is not built to last a thousand years, yet in a sense it is. When a road is once built, it is a strange thing how it collects traffic; how, every year as it goes on, more and more people are found to walk thereon, and others are raised up to repair and perpetuate it, and keep it alive; so that perhaps even this road of ours may, from reparation to reparation, continue to exist and be useful hundreds and hundreds of years after we are mingled in the dust. And it is my hope that our far-away descendants may remember and bless those who labored for them today."—*Robert Louis Stevenson.*

Relation of Motor Taxes to Highway Budget

Total Expenditures, Highways, 1922	$742,000,000.00
Total Motor Vehicle Taxes, 1922	334,901,000.00
Relation of Motor Vehicle Tax to Highway Budget 1922	45.1%

Volume of Traffic on Connecticut Highways



The above chart, prepared by the U. S. Bureau of Public Roads, indicates the relative volume of motor truck traffic over the highways of Connecticut, the thickness of the line indicating the relative density of vehicles per hour. The white oblongs in the lines represent cities. It will be noted that through the stretch of highway between any two given cities traffic tends to be uniform in density.

Detroit Buses Carry 14,000,000

The annual report of the Detroit Motor Bus Co. shows that, operating eighty-one buses, it carried 14,000,000 passengers in 1922, an increase of 57 per cent over 1921, with 42 per cent increase in equipment.

—*Motor Transport.*

Fifth Ave. Coach Carries 52,840,00

The Fifth Avenue Coach Company carried 52,840,000 passengers in the fiscal year 1922, a gain of 1,748,770 over the preceding 12 months.

The 402 buses operating in Newark, N. J., are carrying 14,456.000 persons per month.

Highway Figures--1922

MILEAGE

Miles of Highways in U. S. Certified by U. S. Bureau of Public Roads	2,819,386
Miles of Improved Highways, Federal, State and County	350,000
Miles of Highways Built in 1922	20,000
Miles of Federal Aid Highways Built in 1922	11,400
Miles of Federal Aid *Projects Completed* at end of 1922	18,913
Miles of Federal Aid Projects Under Construction	19,187

EXPENDITURES

Federal, State and County Highways	$742,011,559.00
Cost of Completed Federal Aid Projects to date	$328,358,884.28
Federal Aid Portion	$139,227,437.80
Federal Aid Under Allotment	$149,663,762.92
Federal Aid Paid on Projects Under Construction	$70,269,119.08

2,819,386 Miles of Highways in the United States

(Figures from U. S. Bureau of Public Roads)

STATE	Certified 1922	Mileage in Primary System	Mileage in Secondary System	Maximum Mileage Federal Aid System
Alabama	56,551	1,696	2,262	3,958
Arizona	21,400	642	856	1,498
Arkansas	71,960	2,158	2,879	5,037
California	70,000	2,015	2,432	4,447
Colorado	48,000	1,440	1,920	3,360
Connecticut	12,000	350	470	820
Delaware	3,800	115	151	266
Florida	27,548	1,127	833	2,960
Georgia	80,892	2,427	3,235	5,662
Idaho	40,200	1,163	1,609	2,772
Illinois	96,285	2,888	3,851	6,739
Indiana	70,946	2,128	2,838	4,966
Iowa	109,113	2,930	4,214	7,144
Kansas	124,143	3,216	3,384	6,600
Kentucky	53,000	1,370	1,880	3,250
Louisiana	40,000	1,200	1,600	2,800
Maine	23,104	492	834	1,326
Maryland	14,810	444	592	1,039
Massachusetts	20,525	553	737	1,290
Michigan	75,000	2,250	3,000	5,250
Minnesota	103,050	3,091	4,122	7,213
Mississippi	47,000	1,416	1,874	3,290
Missouri	111,510	3,345	4,461	7,806
Montana	67,100	2,000	2,700	4,700
Nebraska	80,270	2,408	3,211	5,619
Nevada	22,000	600	920	1,520
New Hampshire	14,112	293	707	1,000
New Jersey	17,121	513	685	1,198
New Mexico	47,607	1,390	1,867	3,257
New York	79,400	2,150	2,404	4,554
North Carolina	63,863	1,840	2,354	4,194
North Dakota	68,796	2,061	2,754	4,815
Ohio	84,497	1,690	2,315	4,005
Oklahoma	112,698	3,381	4,508	7,889
Oregon	41,826	1,177	1,628	2,805
Pennsylvania	90,000	2,700	3,600	6,300
Rhode Island	2,368	79	86	165
South Carolina	52,318	1,371	1,854	3,225
South Dakota	115,390	3,462	4,615	8,077
Tennessee	64,895	1,329	2,748	4,077
Texas	182,816	3,640	8,015	10,655
Utah	24,057	690	965	1,655
Vermont	14,900	444	599	1,043
Virginia	53,338	1,600	2,133	3,733
Washington	42,428	1,273	1,697	2,970
West Virginia	31,629	942	768	1,710
Wisconsin	78,800	2,364	3,152	5,516
Wyoming	46,320	1,288	1,946	3,234
Total	**2,819,386**	**71,492**	**98,079**	**187,406**

11,400 Miles of Federal Aid Roads Built in 1922

(Figures, for Calendar Year, from U. S. Bureau of Public Roads)

States	Total Cost	Federal Aid	Miles
Alabama	$ 573,843.84	$ 286,731.60	50.7
Arizona	3,562,583.60	1,708,662.54	179.4
Arkansas	3,682,151.03	1,642,394.91	279.7
California	3,551,261.69	1,334,358.39	120.7
Colorado	2,149,270.45	1,026,182.86	126.4
Connecticut	541,843.50	267,941.22	19.0
Delaware	230,718.08	67,000.00	7.0
Florida	35,514.43	12,762.53	5.1
Georgia	5,090,228.80	2,371,666.53	408.6
Idaho	3,400,439.26	1,660,443.79	208.5
Illinois	16,617,889.70	7,190,562.78	476.9
Indiana	2,263,864.37	1,081,583.27	61.5
Iowa	10,764,468.31	4,186,833.27	752.9
Kansas	8,064,563.68	2,794,626.17	214.0
Kentucky	2,812,584.76	1,202,971.09	128.2
Louisiana	4,224,775.34	1,871,332.13	318.2
Maine	2,443,163.11	1,164,743.78	85.8
Maryland	1,580,652.74	696,812.81	42.3
Massachusetts	4,282,760.10	1,716,229.03	96.6
Michigan	1,870,969.41	924,305.98	68.0
Minnesota	11,388,216.64	4,757,321.09	921.4
Mississippi	2,618,162.88	1,248,517.64	230.7
Missouri	3,220,697.76	1,409,284.63	171.2
Montana	4,680,620.98	2,285,475.56	385.0
Nebraska	652,870.71	305,087.09	115.8
Nevada	1,559,051.96	717,703.48	84.5
New Hampshire	592,315.98	289,292.92	30.1
New Jersey	1,535,479.15	609,076.01	30.5
New Mexico	1,888,274.33	960,420.49	276.4
New York	4,224,134.02	1,927,540.12	127.7
North Carolina	6,770,859.46	3,084,394.06	439.4
North Dakota	4,266,243.56	2,073,066.87	544.9
Ohio	16,352,358.75	5,567,935.81	449.9
Oklahoma	4,115,491.10	1,794,705.64	157.1
Oregon	5,469,765.72	2,404,530.07	212.0
Pennsylvania	24,369,258.78	9,147,423.67	459.7
Rhode Island	342,756.29	158,400.00	7.9
South Carolina	2,558,952.52	1,200,548.83	287.2
South Dakota	3,309,634.38	1,605,724.00	369.2
Tennessee	2,000,179.32	945,823.77	77.5
Texas	15,506,205.66	5,776,094.57	1,126.3
Utah	880,427.43	440,678.13	54.7
Vermont	866,294.67	424,255.97	31.7
Virginia	4,313,095.97	2,039,189.00	243.6
Washington	1,961,389.31	887,923.74	60.5
West Virginia	2,563,469.14	1,115,245.44	133.0
Wisconsin	8,509,970.16	3,379,436.15	525.6
Wyoming	1,773,886.34	879,968.02	230.0
Total	**$216,033,582.17**	**$90,643,207.45**	**11,433.0**

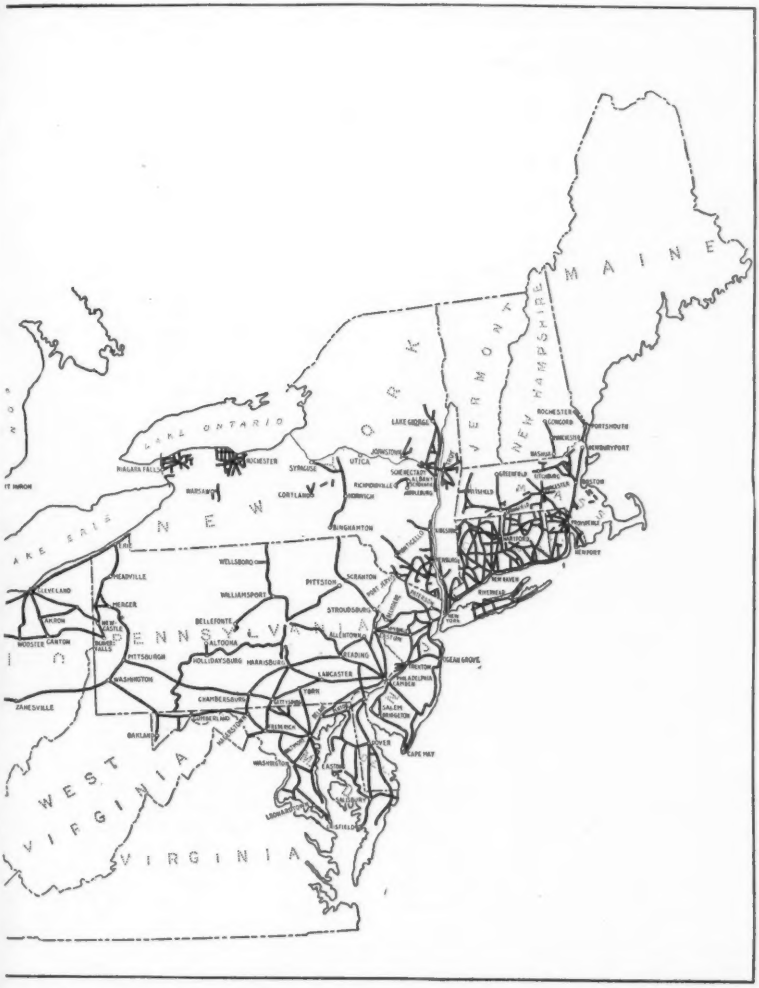
Keeping Highways Open

Tentative map prepared by the U. S. Bureau of Public Roads showing highway department

The U. S. Bureau of Public Roads is making a definite effort each year to inter year round and there is a steadily growi

During the Winter Months

routes for which funds were made available last year by county and state for snow removal.



local highway officials in the question of keeping the main routes of travel open all the appreciation of the value of this service.

18,900 Miles of Federal Aid Road Projects Completed

(Status of Federal Aid Road Construction, as of December 31, 1922. Figures from U. S. Bureau of Public Roads)

	Projects under Construction			Projects Completed			
STATES	Estimated Cost	Federal Aid Allotted	Miles	Federal Aid Paid	Final Cost	Federal Aid Paid	Miles
Alabama	$6,921,344.24	$3,460,671.99	495.6	$1,032,734.03	$3,433,089.14	$1,628,883.50	339.2
Arizona	3,026,204.33	1,748,575.90	298.5	384,674.67	5,735,152.99	2,754,068.42	267.7
Arkansas	6,563,977.01	2,437,106.68	479.8	1,086,351.52	7,852,039.00	2,933,752.01	639.3
California	13,388,326.32	6,971,040.20	582.4	2,747,433.65	5,664,146.68	2,307,084.36	242.2
Colorado	4,690,765.38	2,476,261.71	250.3	1,322,174.49	4,719,544.03	2,244,819.62	306.1
Connecticut	2,895,232.51	1,134,234.38	57.6	651,986.89	667,504.29	320,941.22	24.3
Delaware	827,502.19	352,625.00	24.2	293,276.30	1,846,479.54	460,654.83	35.1
Florida	5,809,632.08	2,840,248.78	187.7	1,534,366.17	69,466.31	29,700.63	15.6
Georgia	6,381,980.72	3,044,221.05	630.9	1,234,129.25	13,476,697.92	6,124,835.89	855.9
Idaho	1,420,132.77	694,796.17	94.4	258,398.27	6,848,887.27	3,255,430.45	424.6
Illinois	6,494,342.27	3,210,068.93	316.9	134,294.34	24,522,589.72	11,126,270.03	729.4
Indiana	9,096,869.63	4,289,286.09	214.4	1,409,986.23	3,993,126.03	1,921,120.82	105.1
Iowa	9,843,998.45	4,634,462.91	974.2	2,343,608.63	14,463,172.79	5,453,382.18	947.9
Kansas	18,024,547.52	5,831,414.33	504.2	2,499,608.86	10,077,660.69	3,455,523.23	269.4
Kentucky	8,048,963.21	3,906,372.05	358.5	2,218,952.12	3,611,107.02	1,570,602.37	160.3
Louisiana	3,930,748.04	1,628,788.59	279.2	1,041,096.65	5,422,784.63	2,385,271.84	448.8
Maine	3,942,126.32	1,874,279.99	113.4	839,743.68	3,063,281.06	1,470,798.12	113.8
Maryland	2,026,327.46	947,142.09	80.0	330,775.91	4,941,712.50	2,340,701.36	171.1
Massachusetts	4,816,014.30	1,831,897.31	93.1	605,544.95	5,297,005.93	2,164,945.14	134.3
Michigan	15,633,906.00	7,353,658.40	540.1	3,681,033.23	3,819,707.01	1,824,131.50	179.0
Minnesota	7,400,648.88	3,005,748.36	652.8	1,462,373.24	18,940,455.77	7,663,827.87	1,801.0
Mississippi	5,534,578.76	2,736,460.60	403.1	1,648,841.73	3,931,987.09	1,878,285.43	396.7
Missouri	12,939,144.62	6,125,188.19	793.0	2,171,708.74	4,088,181.82	1,766,561.42	249.8
Montana	2,233,910.35	1,155,238.27	230.0	722,478.88	6,712,622.25	3,265,321.65	583.3
Nebraska	10,375,419.27	5,119,167.88	1,838.6	3,373,628.96	1,192,299.15	499,522.90	168.0
Nevada	2,482,751.71	1,961,501.60	211.0	770,234.97	2,432,673.49	1,103,367.15	148.0
New Hamp.	763,796.65	368,492.66	30.8	142,838.76	2,208,088.90	1,065,295.35	134.6
New Jersey	3,488,328.69	1,146,670.88	57.1	827,454.77	3,863,339.37	1,474,193.32	86.4
New Mexico	3,895,565.18	2,233,455.64	631.9	1,126,571.35	3,063,198.50	1,546,071.39	391.2
New York	23,789,154.21	9,372,520.78	586.4	4,251,407.65	4,491,729.70	2,061,213.49	138.1
N. Carolina	7,045,168.18	2,885,056.56	341.1	1,452,630.43	9,725,535.07	4,369,972.60	677.5
N. Dakota	3,989,338.03	1,987,071.91	814.8	1,167,591.87	4,608,815.96	2,231,792.55	683.6
Ohio	13,525,715.29	5,280,054.18	355.7	2,278,656.71	20,538,828.07	6,973,579.66	596.0
Oklahoma	8,665,786.88	3,869,849.96	332.9	2,189,050.30	5,379,584.65	2,414,425.03	205.2
Oregon	1,513,305.25	925,185.33	105.7	478,931.61	9,683,220.67	4,364,876.79	481.2
Pennsylvania	14,841,171.49	5,072,461.25	256.6	3,282,031.21	28,536,977.26	11,057,810.67	573.4
Rhode Island	527,936.42	193,054.98	12.3	74,411.00	1,284,454.89	550,080.40	32.0
S. Carolina	5,095,966.29	2,347,876.32	481.5	1,206,646.63	4,980,836.38	2,336,310.30	534.5
South Dakota	5,389,664.71	2,712,841.72	646.1	1,599,011.43	3,564,211.10	1,728,537.20	391.7
Tennessee	14,426,126.22	7,164,756.01	492.5	3,015,591.00	2,037,529.21	964,498.71	77.5
Texas	25,302,293.39	9,198,368.96	1,707.4	4,267,947.56	21,725,274.76	8,381,746.24	1,818.3
Utah	4,619.515.90	2,718,094.52	319.2	1,630,394.64	915,128.03	457,008.97	55.2
Vermont	1,203,306.67	580,092.51	43.4	236,464.12	1,110,738.34	542,925.88	42.7
Virginia	6,238,777.31	3,090,835.99	259.4	1,487,491.42	5,548,149.87	2,643,355.41	343.8
Washington	2,669,726.01	1,190,100.00	75.2	537,179.96	8,816,284.83	4,147,927.38	371.7
W. Virginia	5,492,288.21	2,404,916.81	193.0	1,471,237.68	3,174,251.85	1,396,347.16	164.4
Wisconsin	5,173,109.51	2,055,781.35	431.3	1,094,877.72	12,210,099.25	4,622,575.25	832.3
Wyoming	3,775,829.93	2,095,767.15	308.8	651,264.90	4,069,233.50	1,947,090.11	525.9
Totals	**$334,181,264.76**	**$149,663,762.92**	**19,187.0**	**$70,269,119.08**	**$328,358,884.28**	**$139,227,437.80**	**18,913.1**

*Includes 5,240 miles practically completed.

NOTE: The 18,900 figure is the total mileage in completed projects to date, but does not include the finished highways in incomplete projects. Total mileage constructed in 1922 is tabulated on another page.

$334,901,000

Motor Vehicle Taxes in 1922

(Figures from U. S. Bureau of Public Roads)

FEDERAL

1. Passenger Car Excise Taxes	$69,856,599.44
2. Commercial Vehicle Excise Taxes	9,583,211.67
3. Parts, Accessories, Tires Excise Taxes	35,353,589.09
	$114,793,400.20

STATE

1. Registration Fees	$152,047,823.74
2. Personal Property Taxes	52,500,000.00§
3. Gasoline Taxes	11,923,442.61
	$216,471,266.35

MISCELLANEOUS

1. Wheel and Privilege License	3,636,543.00*§
	$3,636,543.00*

Grand Total - - - - $334,901,209.55

Increase over total 1921 ..... 9.7%†

*This figure is probably considerably under-estimated. Surveys are now being made to get complete reports from municipalities and states on motor vehicle taxes not now reported.—B.P.R.

†Compared with the B. P. R. figures of 1921.

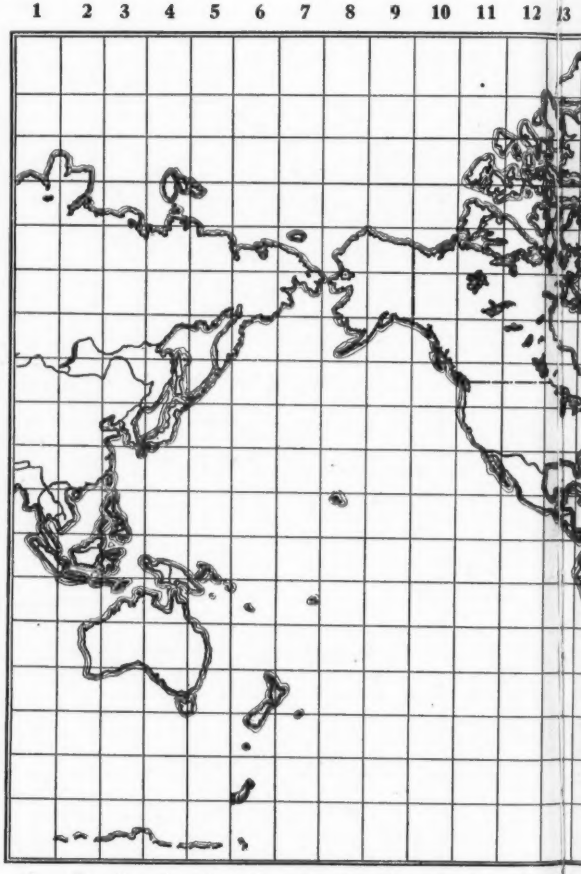
§Figures carried over from 1921 as no later surveys have been made.

14,507,588 Motor Vehicles on

Car and Truck Registration S

(Figures from Automotive Division, U. S. Bure

Country and Map Key	Pass. Cars	Trucks
Alaska F-9	384	153
Algeria J-19	13,000	1,500
Angola L-20	300	100
Arabia J-22	228	15
Argentina O-15	77,637	776
Australia N-4	78,517	3,900
Austria H-20	8,223	3,506
Azores I-17	159	3
Bahama Islands J-14	197	83
Barbados K-15	1,050	50
Belgian Congo L-21	175	65
Belgium H-20	30,000	6,000
Bolivia M-15	300	65
Brazil M-16	23,500	1,500
Br. S. Afr. N-21	34,000	1,500
Br. Guiana L-15	950	125
Br. Honduras K-13	61	12
Br. Oceania N-8	99	53
Bulgaria I-20	500	150
Canada G-12	473,263	36,407
Canary Is. J-18	1,300	200
Chile N-13	7,285	608
China I-2	6,984	437
Colombia L-14	2,000	154
Costa Rica K-13	245	23
Cuba J-14	30,000	3,800
Czechoslovakia H-20	7,750	1,600
Danzig G-20	712	157
Denmark G-20	17,581	4,679
Dom. Repub. K-14	1,449	290
Dutch E. Ind. L-2	18,000	4,000
Dutch Guiana L-15	135*	.....
Dutch W. I. K-14	243*	.....
Ecuador L-14	600	27
Egypt J-21	3,839	331
Esthonia G-21	166	88
Fed. Malay States L-1	3,475	333
Finland § F-21	1,131	623
Fiume H-20	110	115
France H-19	201,040a	94,836
Fr. Guiana L-15	110*	.....
Fr. Indo China K-2	3,000*	.....
Fr. W. Afr. K-20	230*	.....
Germany† H-20	82,505	45,587
Gibraltar I-19	105	.....
Gold Coast K-19	294*	.....
Guatemala K-13	594	290
Guadeloupe K-15	500	40
Greece I-21	4,500	700
Haiti K-14	541	81
Hawaii K-8	15,000*	.....
Honduras K-13	112	20
Hongkong J-2	573	22
Hungary H-20	3,000	200
Iceland & Faroe Is. F-18	145*	.....
India K-25	36,840	3,625
Italy I-21	28,000	25,600
Jamaica K-14	1,876	259
Japan K-3	7,912	899

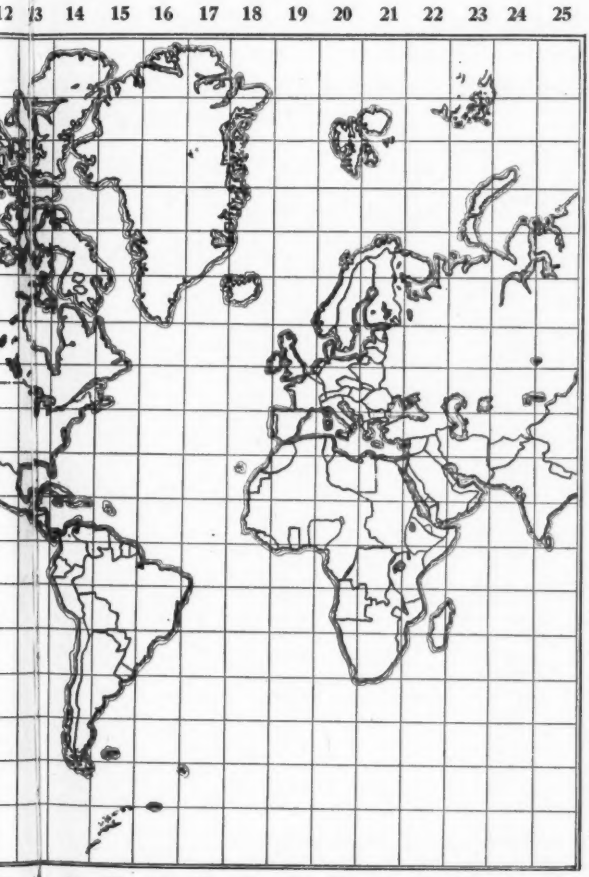


§—Nov. 1922. *a*—In addition there are 13,358 cycle cars in France.
†—June, 1922. ***—Dec., 1922.
**—Sept., 1922.
*—Incomplete returns from countries furnishing 1920 registration as latest.

on Globe—84% in This Country

tion *Separately—by Countries.*

S. Bureau of Foreign and Domestic Commerce.)



Country and Map Key	Pass. Cars	Trucks
Jugoslavia H-20.	1,800	500
Latvia G-21....	160*	.....
Liberia K-18....	17*	.....
Lithuania G-21..	200	250
Madagascar* M-22.....	184	55
Madeira Is. J-18	144	27
Malta & Valetta I-21.....	411	18
Mauritius M-23.	1,650	75
Mesopotamia I-22	5,000	.....
Mexico J-12....	19,406	1,328
Morocco J-19...	2,255	404
Netherlands G-20.....	20,000	2,740
Newf'land & Labrador H-15	600	25
Nigeria K-19....	736	484
New Zealand O-5	35,000	2,500
Nicaragua K-13.	250	40
Norway F-20...	8,050	3,072
Palestine J-22...	700	100
Panama Repub. K-14.....	731	59
Panama Canal Zone K-14....	985	338
Paraguay N-15..	450	20
Peru M-14.....	2,303	1,003
Persia L-23.....	689	.....
Philippines K-3.	9,738	3,053
Poland H-21....	2,500	2,700
Porto Rico K-15	5,537	1,119
Portugal I-19...	10,000	600
Port. E. Afr. M-22.....	230	12
Roumania H-22..	4,220	2,028
Russia G-20....	13,000	.....
Salvador K-13..	400	15
Siam K-1.....	1,800	150
So. W. Afr. (Fr. & Gr.)...	360	10
Spain I-19.....	35,000	6,000
Straits Settlements L-1....	6,090	739
Sweden ** F-20.....	23,198	6,280
Switzerld. K-20.	13,172	5,839
Syria I-22.....	2,100	200
Trinidad K-14 ..	1,519	434
Tunis I-20.....	2,047	233
Turkey I-21	1,700	250
Uruguay N-15..	12,050	450
Venezuela K-14.	3,000	350
Virg. Is. K-15(b)	309 (b)	....
United Kingdom G-19.....	353,271	145,000
United States ***.....	10,793,930	1,445,184

(b) Report from Dunlop Tire & Rubber Co. gives 260 cars and 30 trucks, as of Mar. 1, 1922 in Virg. Is.

	Cars	Trucks
Foreign total..	**1,835,387**	**433,087**
World total....	**12,629,317**	**1,878,271**
U. S. Total Motor Vehicles.....		**12,239,114**
World Total Motor Vehicles.....		**14,507,588**

12,239,114 Motor Vehicles R
1,775,109, or 1

Largest State Registration, New York, 1,002,293.
Largest State Gross Gain, New York, 190,262.
Greatest State Percentage Gain, Louisiana, 31.3%.
Revenues from Licenses and Fees, $152,047,000.

TABULATION BY STATES OF MOTOR VEHICLE REGISTRATION

(Figures from Bureau of Public Roads

STATE	Total Motor Cars and Trucks	Passenger Cars: Private Passenger Cars	Passenger Cars: Taxicabs Buses and Cars for Hire (m)	Motor Trucks and Commercial Cars	Trailers (u)	Motor Cycles
Alabama	90,052	77,473	2,710	9,869	.....	638
Arizona	38,034	33,774(x)	.....	4,260(x)	.....	424
Arkansas	84,596	76,696	.....	7,900	82	238
California	861,807	822,394	.....	39,413	4,861	16,301
Colorado	162,328	151,499	.....	10,829	62	2,770
Connecticut	152,977	124,608	2,447	25,922	117	4,386
Delaware	24,560	21,810(x)	.....	2,750(x)	85	427
Dist. of Columbia	52,792	43,509(a)	2,560	6,723(a)	.....	2,357
Florida	116,170	94,175	2,767	19,228	455	1,456
Georgia	143,423	126,498	.....	16,925	.....	1,136
Idaho	53,874	49,393	.....	4,481	.....	703
Illinois	781,974	682,250	.....	99,724	.....	8,156
Indiana	469,939	413,410	.....	56,529	2,508	6,598
Iowa	500,158	468,736	.....	31,422	100	3,570
Kansas	327,194	303,725	.....	23,469	.....	2,315
Kentucky	154,021	136,627	.....	17,394	.....	1,042
Louisiana	102,284	87,003	.....	15,281	.....	509
Maine	92,539	78,697	.....	13,842	499	1,321
Maryland	165,624	150,523(j)	3,225	11,876(j)	333	4,981
Massachusetts	385,231	325,307(d)	.....	59,924(d)	519	10,047(d)
Michigan	578,210	518,127	.....	60,083	5,305	5,160
Minnestoa	380,557	341,322	.....	39,235	601	3,240
Mississippi	77,571	71,000	.....	6,571	.....	100
Missouri	392,523	352,929	.....	39,594	448	2,792
Montana	62,650	55,682	.....	6,968	.....	397
Nebraska	256,654	233,658	.....	22,996	414	1,856
Nevada	12,116	10,759(x)	.....	1,357(x)	.....	112
New Hampshire	48,406	42,270	.....	6,136	279	1,883
New Jersey	342,286	258,540	9,237	74,509	886	9,284
New Mexico	25,473	23,820(x)	.....	1,653(x)	.....	163

(a) Does not include 19,926 non-resident cars nor 1,836 non-resident trucks.
(d) A total of 65,141 re-registrations deducted pro rata from cars, trucks, and motorcycles.
(j) Includes approximately 12,000 non-resident cars and 2,000 non-resident trucks.
(m) For nine months, March 1 to December 31 inclusive.
(u) Where blanks occur no data could be secured as to the number of trailers in the State.
(x) Estimated division of passenger cars and trucks by N. A. C. C. State keeps no separate record.

(Continued on

Registered in U. S.

17% Gain, Over 1921

California has 1 Motor Vehicle to every 4 Persons.
Per Cent World's Registration in U. S.—84%
Persons per Motor Vehicle, U. S.—9.
Motor Vehicles per 1000 Population, U. S.—116.

LICENSES, REVENUES FOR CALENDAR YEAR 1922

U. S. Department of Agriculture)

Registration Revenues		Gasoline Tax		
Total Gross	Amount Applicable to State Road Work	Total Gross	Amount Applicable to State Road Work	STATE
$1,262,800.00(b)	$ 939,074.14(t-b)	$ .....(s)	$.....	.....Alabama
216,598.26	216,598.26	157,468.73	157,468.73	.....Arizona
1,030,196.60	311,373.60	208,075.98	104,037.99	.....Arkansas
8,384,606.40	3,785,555.00	.....	.....	.....California
991,677.22	897,972.61(t)	644,865.94	644,865.94	.....Colorado
3,567,744.84	3,567,744.84	689,247.53	.....	.....Connecticut
426,377.00	426,377.00(t)	.....	.....	.....Delaware
353,726.50	.....	.....	.....	.....District of Columbia
1,538,342.26	1,034,009.01	693,221.41	693,221.41	.....Florida
1,830,047.61	1,830,047.61	739,188.55	.....	.....Georgia
812,943.72	203,237.68	.....	.....	.....Idaho
7,882,482.02	7,882,482.02(t)	.....	.....	.....Illinois
2,999,588.50	2,750,000.00(b)	.....	.....	.....Indiana
7,923,388.06	7,378,751.00(b)	.....	.....	.....Iowa
3,100,000.00(b)	.....	.....	.....	.....Kansas
2,140,444.31	2,140,444.31	447,549.97(p)	447,549.97(p)	.....Kentucky
1,756,226.42	1,756,226.42	484,392.81	484,392.81	.....Louisiana
1,417,507.57	1,417,507.57(h)	.....	.....	.....Maine
2,824,843.91	2,125,000.00(b)	395,545.53(k)	395,545.53	.....Maryland
5,685,527.05	5,685,527.05(c)	.....	.....	.....Massachusetts
8,385,022.17	3,778,296.87	.....	.....	.....Michigan
6,543,685.77	6,543,685.77(t)	.....	.....	.....Minnesota
1,179,803.00	1,179,803.00	264,739.19(m)	263,389.19	.....Mississippi
3,512,182.97	3,400,000.00(b-t)	.....	.....	.....Missouri
619,899.50	291,700.15	243,912.39	.....	.....Montana
3,031,699.93	1,409,740.47	.....	.....	.....Nebraska
120,937.73	112,366.73(t)	.....	.....	.....Nevada
1,246,098.46	1,145,601.57	.....	.....	.....New Hampshire
6,251,418.50	5,991,949.61	.....	.....	.....New Jersey
243,813.61	223,074.81	183,088.79(e)	147,097.49	.....New Mexico

(b) Approximate.
(c) Devoted to road work in accordance with legislative appropriations.
(e) Includes $28,707.62 of delinquent gasoline taxes.
(h) Of this amount $414,330.00 was devoted to payment of interest and principal on State Highway Bonds and $197,813.50 to administration of Highway Department, Auto Registration and Motor Enforcement Department.
(k) For seven months, June 1 to December 31 inclusive.
(m) For nine months, April 1 to December 31 inclusive.
(p) For fiscal year ending June 30, 1922, data for calendar year not available.
(s) State inspection fee on gasoline of one half mill per gallon.
(t) Devoted to financing of State Highway bonds and remainder to road work.

(wo following pages)

Motor Vehicle Registrations

(Continued from

STATE	Total Motor Cars and Trucks	Passenger Cars: Private Passenger Cars	Passenger Cars: Taxicabs Buses and Cars for Hire (m)	Motor Trucks and Commercial Cars	Trailers (u)	Motor Cycles
New York	1,002,293	781,070	35,365	185,858	3,417	25,175
North Carolina(i)	182,550	163,600	.....	18,950	.....	1,190
North Dakota	99,052	96,080	.....	2,972	.....	766
Ohio	858,716	740,384	.....	117,832	5,389	15,339
Oklahoma	249,659	221,697(x)	.....	27,962(x)	.....	952
Oregon	134,125	118,035	592	15,498(f)	337	3,206
Pennsylvania	829,737	763,916	.....	65,821	1,075	19,316
Rhode Island	66,083	51,804	1,503	12,776	52	1,434
South Carolina	95,978	88,757	.....	7,221	68	557
South Dakota	125,241	116,144	.....	9,097	.....	659
Tennessee	135,716	119,319	.....	16,397	.....	1,680(b)
Texas	526,238	467,299(x)	.....	58,939(x)	.....	3,401
Utah	49,164	41,942	.....	7,222	150	742
Vermont	43,881	41,241	.....	2,640	.....	856
Virginia	168,000	145,000	.....	23,000	200	1,850
Washington	210,716	176,074	2,701	31,941	980	3,846
West Virginia	112,763	101,301	6,352	5,110	96	1,361
Wisconsin	382,542	356,143	.....	26,399	.....	5,718
Wyoming	30,637	27,410	.....	3,227	10	304
Totals	**12,239,114**	**10,793,930**	**69,459**	**1,375,725**	**29,335**	**182,762**

(b) Approximate.
(f) Includes 4,763 commercial cars of less than one ton capacity.
(m) For nine months, April 1 to December 31 inclusive
(u) Where blanks occur no data could be secured as to the number of trailers in the State.
(x) Estimated division of passenger cars and trucks by N. A. C. C. State keeps no separate record.

499,022 Motor Vehicles in Canada

(Registration figures from Automotive Industries in Canada)

Province	Passenger Cars 1921	Passenger Cars 1922	Motor Trucks 1921	Motor Trucks 1922	Total 1921	Total 1922
Ontario	181,978	210,333	19,554	24,164	201,532	234,497
Quebec	47,365	51,936	5,586	6,731	52,951	58,667
Saskatchewan	59,336	57,336	1,500	1,500	60,836	58,836
Manitoba	37,415	38,913	1,825	2,102	39,240	41,015
Alberta	38,165	38,215	1,687	1,749	39,852	39,964
British Columbia	30,500	33,000	1,500	1,500	32,000	34,500
Nova Scotia	12,550	14,177	1,500	1,707	14,050	15,884
New Brunswick	12,585	12,609	875	904	13,460	13,513
Prince Edward Island	1,673	2,059	70	87	1,743	2,146
Total	**421,567**	**458,578**	**34,097**	**40,444**	**455,664**	**499,022**

Licenses, and Revenues for 1922

two preceding pages)

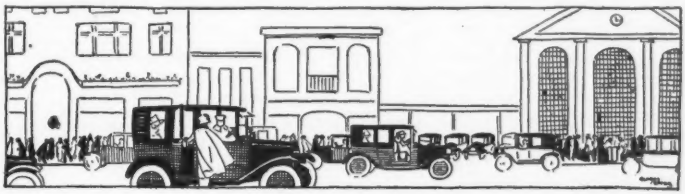
Registration Revenue		Gasoline Tax		
Total Gross	Amount Applicable to State Road Work	Total Gross	Amount Applicable to State Road Work	STATE
$12,736,364.37	$9,500,000.00(b-c)	$.....	$.....	.....New York
2,715,331.58	2,645,000.00(b-t)	778,496.68	760,000.00(b)	.....North Carolina(i)
698,931.70	221,965.85	.....(q)	.....	.....North Dakota
7,888,992.38	3,986,621.56	.....	.....	.....Ohio
2,729,169.15	.....	.....	.....	.....Oklahoma
3,340,519.58	2,380,000.00(b)	1,100,260.11(g)	1,053,779.48	.....Oregon
12,575,380.56	12,575,380.56	2,683,526.68	.....	.....Pennsylvania
1,139,742.77	1,057,678.10	.....	.....	.....Rhode Island
734,856.18	587,884.94	767,032.65(1)	.....	.....South Carolina
743,232.00	.....	489,000.00	369,000.00	.....South Dakota
1,592,230.14	1,592,230.14	.....(r)	.....	.....Tennessee
4,261,488.67	2,071,233.00	.....	.....	.....Texas
729,455.00	675,222.37(t)	.....	.....	.....Utah
781,982.35	708,885.88	.....	.....	.....Vermont
2,467,346.93	2,346,966.93	.....	.....	.....Virginia
3,291,671.70	3,166,971.70	953,829.67	953,829.57	.....Washington
1,936,079.29	1,936,079.29	.....	.....	.....West Virginia
4,088,570.00	2,900,000.00(b)	.....	.....	.....Wisconsin
316,849.50	316,849.50	.....	.....	.....Wyoming
$152,047,823.74	**$117,093,116.92**	**$11,923,442.61**	**$6,474,178.11**	**.....Totals**

(b) Approximate.
(c) Devoted to road work in accordance with legislative appropriations.
(g) For the first eleven months of 1922.
(i) For first six months of registration year July to December 1, 1922 inclusive.
(l) For ten months, March 1 to December 31 inclusive.
(q) State tax of one fourth to one half cent per gallon on all petroleum products except lubricating oils amounting to $128,165.00 during 1922. Proceeds to general State Funds.
(r) State Fees, coaloil inspectors, amounted to approximately $360,000, Proceeds to State General fund.
(t) Devoted to financing of State Highway bonds and remainder to road work.

90,000 Taxicabs in U. S. in 1922

(These figures are estimates by the Cab News. It will be noted that in the City Registration Tables 60 cities reporting taxicabs separately have 41,000 taxicabs and jitneys. This represents but about half the cities having over 50,000 population and does not take into consideration the cities under 50,000 many of which are users of taxicabs.)

Number of taxicabs and jitneys in U. S.	90,000
Number of cab companies in U. S.	7,500
Number of individual cab owners	15,000
Average annual mileage of a cab	27,000



Motor Vehicle Registrations 1917-1922

(Figures from U. S. Bureau of Public Roads)

State	1917	1918	1919	1920	1921	1922
Alabama	32,873	46,171	58,898	74,637	82,366	90,052
Arizona	19,890	23,905	28,979	34,601	35,611	38,034
Arkansas	28,693	41,458	49,450	59,082	67,408	84,596
California	306,916	407,761	477,450(x)	568,892	680,614	861,807
Colorado	87,460	83,244	104,865	129,255	145,739	162,328
Connecticut	74,645	86,067	102,410	119,134	134,141	152,977
Delaware	10,700	12,955	16,152	18,300	21,413	24,560
District of Columbia	15,493	30.490	35,400(c)	34,161	40,625(d)	52,792
Florida	27,000*	54,186	55,400	73,914	97,957	116,170
Georgia	70,324	104,676	137,000	146,000	131,976	143,423*
Idaho	24,731	32,289	42,220	50,861	51,294	53,879
Illinois	340,292	389,620	478,438	568,924	663,348	781,974
Indiana	192,194	227,160	227,255	333,067	400,342	469,939
Iowa	254,462	278,313	363,079	437,378	461,084	500,158
Kansas	159,343	189,163	227,752	294,159	289,539	327,194
Kentucky	47,420	65,884	90,008	112,683	126,802	154,021
Louisiana	28,394	40,000	51,000	73,000	77,885	102,284
Maine	41,499	40,372	53,425	62,907	77,527	92,539
Maryland	60,943	74,666	95,634	102,841	136,249	165,624
Massachusetts	174,274	193,497	247,182	274,498	360,732	385,238
Michigan	247,006	262,125	325,813	412,717	476,452	578,210
Minnesota	175,000*	204,458	240,000*	290,000*	323,475(o)	380,557
Mississippi	36,600	48,400	45,030	68,486	65,039	77,571
Missouri	147,528	188,040	244,363	297,008	346,437	392,523
Montana	42,749	51,053	59,324	60,650	58,785	62,650
Nebraska	148,101	173,374	200,000	219,000	238,704	256,654
Nevada	7,160	8,159	9,305	10,464	10,821	12,116
New Hampshire	22,267	24,817	31,625	34,680	42,039	48,406
New Jersey	141,918	155,519	190,873	227,737	272,994	342,286
New Mexico	14,086	17,647	18,082	22,100	22,559	25,473
New York	406,016	459,292	566,511	670,290	812,031	1,002,293
North Carolina	55,950	72,313	109,017	140,860	148,627	182,550
North Dakota	62,993	71,678	82,885	90,840	92,644	99,052
Ohio	346,772	412,775	511,031	621,390	720,634(t)	858,716
Oklahoma	100,199	121,500	144,500	212,880	221,300	249,659
Oregon	48,632	63,324	83,332	103,790	118,198	134,125
Pennsylvania	325,153	394,186	482,117	570,164	689,589	829,737
Rhode Island	37,046	35,218	44,833	50,477	54,608	66,083
South Carolina	38,322	55,492	70,143	93,843	90,546	95,978
South Dakota	67,158	90,521	104,628	120,395	119,274	125,241
Tennessee	48,000	63,000	80,422	101,852	117,025	135,716
Texas	192,961	251,118	331,310	427,693	467,616	526,238
Utah	24,076	32,273	35,236	42,616	47,485	49,164
Vermont	21,633	22,553	26,807	31,625	37,265	43,881
Virginia	55,661	72,228	94,100	115,470	139,200	168,000
Washington	91,337	117,278	148,775	173,920	185,359	210,716
West Virginia	31,300	38,750	50,203	80,664	93,940	112,763
Wisconsin	158,637	196,253	236,290	293,298	341,841	382,542
Wyoming	12,523	16,200	21,371	23,926	26,866	30,637
Total	**5,104,321**	**6,146,617**	**7,530,105**	**9,177,129**	**10,464,005**	**12,239,114**

* Estimated.

(c) Does not include non-resident registrations.

(d) Does not include 8,439 non-resident passenger cars and 1,023 non-resident trucks.

(o) Does not include 1,752 cars and trucks owned by State, cities and counties.

(t) Does not include 2,800 cars and trucks owned by State, cities and counties.

(x) Does not include 10,000 cars operated under exempt licenses.

Total Gross Motor Vehicle Revenues 1917-1922

(Figures from Bureau of Public Roads, U. S. Department of Agriculture)

	1917	1918	1919	1920	1921	1922
Alabama	$ 217,700	$ 470,274	$ 541,348.70	$ 835,178.00	$ 1,147,265.00	$ 1,262,800.00
Arizona	117,643	142,288	164,755.68	192,368.92	195,969.75	216,598.26
Arkansas	205,176	410,649	500,970.00	591,464.50	856,543.60	1,030,196.60
California	2,846,030	3,524,036	4,468,721.67	5,554,265.00	6,834,089.52	8,384,606.40
Colorado	296,808	379,559	490,432.31	819,872.74	906,059.27	991,677.22
Connecticut	1,080,757	1,285,164	1,516,136.01	1,852,591.00	2,129,861.12	3,567,744.84
Delaware	133,883	232,449	286,333.00	329,980.00	375,469.00	426,377.00
District of Columbia	55,928	220,753	274,184.00	266,285.00	209,583.00	353,726.50
Florida	170,000*	345,775	401,317.40	554,695.14	734,845.50	1,538,342.26
Georgia	229,653	331,816	429,848.00	1,919,338.92	1,705,941.24	1,830,047.61
Idaho	412,641	576,555	729,702.94	882,034.51	841,212.93	812,943.72
Illinois	1,588,835	2,764,330	3,262,714.00	5,915,700.17	6,803,556.21	7,882,482.02
Indiana	1,096,159	1,293,128	1,558,740.50	2,029,694.00	2,422,227.00	2,999,588.50
Iowa	2,249,655	2,547,596	3,077,145.81	7,507,202.08	7,719,127.47	7,923,388.06
Kansas	830,878	978,837	1,150,000.00	1,419,345.50	1,400,000.00	3,100,000.00
Kentucky	287,314	402,250	565,520.21	815,549.31	1,771,887.02	2,140,444.31
Louisiana	166,835	240,000	306,000.00	390,000.00	453,276.00	1,756,226.42
Maine	491,696	570,171	685,570.25	818,755.50	1,004,750.25	1,417,507.57
Maryland	807,395	1,189,984	1,776,410.22	2,121,924.84	2,460,162.04	2,824,843.91
Massachusetts	1,969,994	2,184,821	2,667,853.85	3,860,231.70	4,717,389.30	5,685,527.05
Michigan	2,471,271	2,875,266	3,719,433.39	5,754,900.96	6,751,924.51	8,385,022.17
Minnesota	100,000	1,076,811	218,469.50	143,794.50	5,672,424.61	6,543,685.77
Mississippi	250,000	335,000	400,000.00	800,000.00	751,946.63	1,179,803.00
Missouri	617,942	1,394,762	1,725,076.70	416,245.00	2,505,353.90	3,512,182.97
Montana	290,936	350,914	407,848.00	2,111,696.85	594,520.50	619,899.50
Nebraska	451,303	536,897	304,150.55	2,800,000.00	2,824,811.25	3,031,699.93
Nevada	31,166	31,083	37,550.75	103,318.33	102,800.00	120,937.73
New Hampshire	425,305	509,335	599,621.25	654,702.04	876,322.14	1,246,098.46
New Jersey	1,923,164	2,431,757	2,931,904.15	3,503,936.76	3,974,063.75	6,251,418.50
New Mexico	80,843	105,631	111,150.00	200,000.00	198,632.77	243,813.61
New York	4,284,144	4,945,298	5,984,659.50	8,511,597.00	10,288,858.25	12,736,364.37
North Carolina	321,923	394,739	1,313,950.73	1,785,000.00	2,259,240.43	2,715,331.58
North Dakota	211,536	471,429	636,842.40	691,500.00	683,052.45	698,931.70
Ohio	1,766,427	2,125,426	2,593,000.00	6,400,000.00	6,894,159.73	7,888,992.38
Oklahoma	853,659	1,102,380	1,178,130.27	2,500,000.00	2,619,713.49	2,729,169.15
Oregon	196,787	161,422	602,239.00	2,085,168.50	2,334,931.25	3,340,519.58
Pennsylvania	3,268,025	4,048,186	5,090,921.00	8,090,873.04	9,470,174.31	12,575,380.56
Rhode Island	346,117	385,608	477,223.25	531,462.75	848,723.59	1,139,742.77
South Carolina	110,787	300,217	389,034.68	527,868.13	733,820.09	734,856.18
South Dakota	210,592	282,742	322,340.50	784,000.00	720,587.00	743,232.00
Tennessee	322,200	390,000	585,181.95	1,215,776.04	1,387,870.10	1,582,230.14
Texas	858,978	2,039,589	2,624,334.29	3,510,355.97	3,806,395.25	4,261,488.67
Utah	170,707	229,203	291,325.96	350,933.29	441,359.88	729,455.00
Vermont	363,541	398,856	460,190.87	555,422.38	668,288.50	781,982.35
Virginia	518,566	684,636	900,000.00	1,822,736.16	2,021,146.09	2,467,346.93
Washington	519,526	875,391	2,325,323.53	2,828,896.10	3,140,730.74	3,291,671.70
West Virginia	359,339	447,705	1,008,083.31	1,280,193.28	1,250.525.82	1,936.079.29
Wisconsin	861,278	2,076,701	2,502,852.00	3,127,073.00	3,671,645.50	4,088,570.00
Wyoming	57,421	80,000	102,114.50	267,179.35	288,121.88	316,849.50
Total	**$37,498,463**	**$51,477,417**	**$64,697,255.58**	**$102,034,106.26**	**$122,471,359.63**	**$152,047,823.74**

*Estimated

Car Registration and Truck Registration Separately

(By States—1920, 1921, 1922)

	PASSENGER CARS				TRUCKS AND COMMERCIAL CARS		
State	1920	1921	1922	State	1920	1921	1922
Alabama	61,941	73,256	80,183	Alabama	12,696	9,110	9,869
Arizona	29,868	31,631	33,774*	Arizona	4,733	3,980	4,260*
Arkansas	52,412*	60,148*	76,696	Arkansas	6,670*	7,260*	7,900
California	534,814	645,522	822,394	California	34,078	35,092	39,413
Colorado	121,506	136,336	151,499	Colorado	7,749	9,403	10,829
Connecticut	95,123	110,029	127,055	Connecticut	24,011	24,112	25,922
Delaware	16,270*	19,113*	21,810*	Delaware	2,030*	2,300*	2,750*
District of Col	29,131	35,448	46,069	District of Col	5,030	5,177	6,723
Florida	63,466	83,111	96,942	Florida	10,448	14,846	19,228
Georgia	134,000	117,762	126,498	Georgia	12,000	14,214*	16,925
Idaho	46,541*	46,935	49,393	Idaho	4,320*	4,359	4,481
Illinois	504,250	583,441	682,250	Illinois	64,674	79,907	99,724
Indiana	300,226	357,025	413,410	Indiana	32,841	43,317	56,529
Iowa	407,578	430,118	468,736	Iowa	29,800	30,966	31,422
Kansas	272,389*	267,891	303,725	Kansas	21,770*	21,648	23,469
Kentucky	99,437	111,777	136,627	Kentucky	13,246	15,025	17,394
Louisiana	66,000	67,311	87,003	Louisiana	7,000	10,574	15,281
Maine	55,395	67,591	78,697	Maine	7,512	9,936	13,842
Maryland	87,625	124,652	153,748	Maryland	15,216	11,597	11,876
Massachusetts	323,112	305,471	325,307	Massachusetts	51,386	55,261	59,924
Michigan	366,946	426,687	518,127	Michigan	45,771	49,765	60,083
Minnesota	268,260*	299,100	341,322	Minnesota	21,740*	24,375	39,235
Mississippi	63,721	60,489*	71,000	Mississippi	4,765	4,550*	6,571
Missouri	267,300*	311,787*	352,929	Missouri	29,700*	34,650*	39,594
Montana	59,450	56,434*	55,682	Montana	1,200	2,351*	6,968
Nebraska	200,000	219,781	233,658	Nebraska	19,000	18,923	22,996
Nevada	9,639*	10,000	10,759*	Nevada	825*	821	1,357*
New Hampshire	30,240	36,994	42,270	New Hampshire	4,440	5,045	6,136
New Jersey	204,125	248,477	267,777	New Jersey	23,612	24,517	74,509
New Mexico	20,664	21,155	23,820*	New Mexico	1,436*	1,404	1,653*
New York	521,417	663,478	816,435	New York	148,873	148,553	185,858
North Carolina	127,405	134,884	163,600	North Carolina	13,455	13,743	18,950
North Dakota	88,475*	90,221	96,080	North Dakota	2,365*	2,423	2,972
Ohio	538,090	622,044	740,884	Ohio	83,300	98,590	117,832
Oklahoma	204,300	197,465*	221,697*	Oklahoma	8,580	23,834*	27,962*
Oregon	91,336*	103,838	118,627	Oregon	12,454*	14,360	15,498
Pennsylvania	521,835	632,541	763,916	Pennsylvania	48,329	57,048	65,821
Rhode Island	40,914	44,915	53,307	Rhode Island	9,563	9,693	12,776
South Carolina	86,711*	83,703	88,757	South Carolina	7,132*	6,843	7,221
South Dakota	112,589	110,997	116,144	South Dakota	7,806	8,277	9,097
Tennessee	90,214	102,795	119,319	Tennessee	11,638	14,230	16,397
Texas	379,364*	417,231*	467,299*	Texas	48,329*	50,385*	58,939*
Utah	37,060	40,562	41,942	Utah	5,556	6,923	7,222
Vermont	28,709	33,778	41,241	Vermont	2,916	3,487	2,640
Virginia	101,800	122,000	145,000	Virginia	13,670	17,200	23,000
Washington	144,131	157,620	178,775	Washington	29,789	27,739	31,941
West Virginia	69,862	77,397	107,653	West Virginia	10,802	16,543	5,110
Wisconsin	277,093	320,577	356,143	Wisconsin	16,205	21,264	26,399
Wyoming	21,387	23,966	27,410	Wyoming	2,539	2,900	3,227
Totals	**8,174,129**	**9,345,485**	**10,863,389**		**1,003,000**	**1,118,520**	**1,375,725**

*Estimated

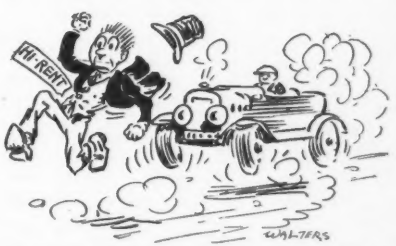
States Rated According to Total Registration

Rank	State	Total Motor Vehicle Registration	Rank	State	Total Motor Vehicle Registration
1.	New York	1,002,293	26.	Tennessee	135,716
2.	California	861,807	27.	Oregon	134,125
3.	Ohio	858,716	28.	South Dakota	125,241
4.	Pennsylvania	829,737	29.	Florida	116,170
5.	Illinois	781,974	30.	West Virginia	112,763
6.	Michigan	578,210	31.	Louisiana	102,284
7.	Texas	526,238	32.	North Dakota	99,052
8.	Iowa	500,158	33.	South Carolina	95,978
9.	Indiana	469,939	34.	Maine	92,539
10.	Missouri	392,523	35.	Alabama	90,052
11.	Massachusetts	385,231	36.	Arkansas	84,596
12.	Wisconsin	382,542	37.	Mississippi	77,571
13.	Minnesota	380,557	38.	Rhode Island	66,083
14.	New Jersey	342,286	39.	Montana	62,650
15.	Kansas	327,194	40.	Idaho	53,874
16.	Nebraska	256,654	41.	District of Columbia	52,792
17.	Oklahoma	249,659	42.	Utah	49,164
18.	Washington	210,716	43.	New Hampshire	48,406
19.	North Carolina	182,550	44.	Vermont	43,881
20.	Virginia	168,000	45.	Arizona	38,034
21.	Maryland	165,624	46.	Wyoming	30,637
22.	Colorado	162,328	47.	New Mexico	25,473
23.	Kentucky	154,021	48.	Delaware	24,560
24.	Connecticut	152,977	49.	Nevada	12,116
25.	Georgia	143,423			
				Total United States	**12,239,114**

Motor Cars Used to Fight High Rents

NATIONWIDE investigation into the uses to which the motor car is put by its purchasers, conducted by the National Automobile Chamber of Commerce, discloses that in 135,000 instances in 60 cities throughout the country the motor car has been used as a vehicle of relief from high city rentals. The owners of this number of automobiles have moved from the city to the suburbs and depend solely upon their cars for transportation between their offices and homes.

The combined population of the 60 reporting cities is less than 8,000,000.



If the same ratio is maintained throughout the rest of the United States, not less than 500,000 automobiles have been used during the past three years in the fight against high rents.

—Western Newspaper Union.

Numerical Increases in Registrations

1922 Over 1921

Rank	State	Gain in Motor Vehicle Registration	Rank	State	Gain in Motor Vehicle Registration
1.	New York	190,262	26.	Florida	18,213
2.	California	181,193	27.	Nebraska	17,950
3.	Pennyslvania	140,148	28.	Arkansas	17,188
4.	Ohio	138,682	29.	Colorado	16,589
5.	Illinois	118,626	30.	Oregon	15,927
6.	Michigan	101,758	31.	Maine	15,012
7.	Indiana	69,597	32.	Mississippi	12,532
8.	New Jersey	69,292	33.	District of Columbia	12,167
9.	Texas	58,622	34.	Rhode Island	11,475
10.	Minnesota	57,082	35.	Georgia	11,447
11.	Missouri	46,086	36.	Alabama	7,686
12.	Wisconsin	40,701	37.	Vermont	6,616
13.	Iowa	39,074	38.	North Dakota	6,408
14.	Kansas	37,655	39.	New Hampshire	6,367
15.	North Carolina	33,923	40.	South Dakota	5,967
16.	Maryland	29,375	41.	South Carolina	5,432
17.	Virginia	28,800	42.	Montana	3,865
18.	Oklahoma	28,359	43.	Wyoming	3,771
19.	Kentucky	27,219	44.	Delaware	3,147
20.	Washington	25,357	45.	New Mexico	2,914
21.	Massachusetts	24,499	46.	Idaho	2,580
22.	Louisiana	24,399	47.	Arizona	2,423
23.	Connecticut	18,836	48.	Utah	1,679
24.	West Virginia	18,823	49.	Nevada	1,295
25.	Tennessee	18,691		**Total Increase U. S.**	**1,775,709**

Percentage Increases in Registrations

1922 Over 1921

Rank	State	% Gain in Motor Vehicle Registration	Rank	State	% Gain in Motor Vehicle Registration
1.	Louisiana	31.3%	11.	Rhode Island	21.0%
2.	District of Columbia	30.0	12.	Virginia	20.7
3.	California	26.6	13.	Pennsylvania	20.3
4.	Arkansas	25.5	14.	West Virginia	20.0
5.	New Jersey	25.4	15.	Maine	19.4
6.	New York	23.4	16.	Ohio	19.2
7.	North Carolina	22.8	17.	Mississippi	19.2
8.	Maryland	21.6	18.	Florida	18.6
9.	Kentucky	21.5	19.	Illinois	17.9
10.	Michigan	21.4	20.	Vermont	17.7

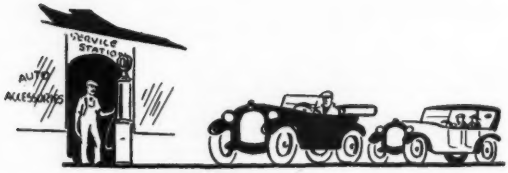
PERCENTAGE INCREASES IN REGISTRATIONS

(Continued from preceding page)

Rank	State	% Gain in Motor Vehicle Registration
21.	Minnesota	17.6%
22.	Indiana	17.4
23.	Tennessee	15.9
24.	New Hampshire	15.1
25.	Delaware	14.7
26.	Wyoming	14.0
27.	Washington	13.7
28.	Oregon	13.7
29.	Missouri	13.3
30.	Connecticut	13.3
31.	Kansas	13.0
32.	New Mexico	12.9
33.	Oklahoma	12.8
34.	Texas	12.5
35.	Nevada	12.0
36.	Wisconsin	11.9%
37.	Colorado	11.4
38.	Alabama	9.3
39.	Georgia	8.6
40.	Iowa	8.5
41.	Nebraska	7.5
42.	North Dakota	6.9
43.	Arizona	6.8
44.	Massachusetts	6.8
45.	Montana	6.5
46.	South Carolina	6.0
47.	Idaho	5.0
48.	South Dakota	5.0
49.	Utah	3.3
	Total Increase, U. S.	**17%**

Ratio of Motor Vehicles to Population

Rank	State	No. of Persons per Motor Vehicle	Motor Vehicles per 1000 Population
1.	California	3.8	251.4
2.	Iowa	4.8	208.0
3.	Nebraska	5.1	198.1
4.	South Dakota	5.1	196.7
5.	Kansas	5.4	185.0
6.	Colorado	5.8	173.0
7.	Oregon	5.8	171.1
8.	Indiana	6.2	160.1
9.	Minnesota	6.3	159.2
10.	Michigan	6.3	157.6
11.	Wyoming	6.3	157.6
12.	Nevada	6.4	156.5
13.	Washington	6.5	155.2
14.	North Dakota	6.5	153.2
15.	Ohio	6.8	149.0
16.	Wisconsin	6.9	145.0
17.	Idaho	8.0	125.0
18.	Vermont	8.0	124.2
19.	Oklahoma	8.1	123.0
20.	District of Columbia	8.3	120.8
21.	Illinois	8.3	120.5
22.	Maine	8.3	120.4
23.	Florida	8.3	120.0
24.	Missouri	8.7	115.1
25.	Maryland	8.8	114.1
26.	Montana	8.8	114.0
27.	Arizona	8.8	113.8
28.	Texas	8.9	112.9
29.	Connecticut	9.0	110.6
30.	Delaware	9.1	110.0
31.	Rhode Island	9.1	109.5
32.	Utah	9.1	109.3
33.	New Hampshire	9.2	109.2
34.	New Jersey	9.2	108.7
35.	Massachusetts	10.0	100.0
36.	New York	10.4	96.5
37.	Pennsylvania	10.5	95.1
38.	West Virginia	12.9	77.0
39.	Virginia	13.8	72.7
40.	North Carolina	14.0	71.3
41.	New Mexico	14.1	70.6
42.	Kentucky	15.7	63.8
43.	Tennessee	17.2	58.1
44.	Louisiana	17.6	56.9
45.	South Carolina	17.7	56.6
46.	Georgia	20.2	49.6
47.	Arkansas	20.4	48.2
48.	Mississippi	23.1	43.3
49.	Alabama	26.1	38.4
	Total U. S.	**8.6**	**115.7**



Service Stations in Relation to Motor Vehicles

Cities Over 100,000 Population

City	Number of Motor Vehicles	Number of Service Stations*	Number of Motor Vehicles per Station
Akron, Ohio	36,214	80	453
Albany, N. Y	16,282	86	189
Atlanta, Ga	29,029	85	341
Baltimore, Md	.....	185	.....
Birmingham, Ala	16,203	89	182
Boston, Mass	.....	176	.....
Bridgeport, Conn	22,734	49	465
Buffalo, N. Y	50,300	272	185
Cambridge, Mass	.....	29	.....
Camden, N. J	.....	55	.....
Chicago, Ill	210,500	877	240
Cincinnati, Ohio	45,820	226	203
Cleveland, Ohio	98,672	392	251
Columbus, Ohio	38,009	148	256
Dallas, Texas	39,000	156	250
Dayton, Ohio	32,060	86	373
Denver, Col	46,124	201	229
Des Moines, Ia	.....	107	.....
Detroit, Mich	169,983	313	544
Fall River, Mass	.....	33	.....
Fort Worth, Texas	.....	110	.....
Grand Rapids, Mich	20,072	98	205
Hartford, Conn	14,762	63	234
Houston, Tex	32,710	146	224
Indianapolis, Ind	56,960	153	372
Jersey City, N. J	.....	61	.....
Kansas City, Kan	.....	46	.....
Kansas City, Mo	62,650	212	295
Los Angeles, Calif	196,710	394	500
Lowell, Mass	12,020	57	211
Louisville, Ky	32,456	97	334
Memphis, Tenn	27,270	79	345
Milwaukee, Wis	39,720	247	160
Minneapolis, Minn	70,478	225	312
Nashville, Tenn	14,170	50	283
Newark, N. J	50,652	148	342

City	Number of Motor Vehicles	Number of Service Stations*	Number of Motor Vehicles per Station
New Bedford, Mass	9,574	46	207
New Haven, Conn	13,600	57	238
New Orleans, La	28,476	119	239
New York, N. Y	300,072	961	312
Norfolk, Va	10,512	46	229
Oakland, Calif	.....	118	.....
Omaha, Neb	28,355	140	202
Paterson, N. J	.....	33	.....
Philadelphia, Pa	.....	813	.....
Pittsburgh, Pa	.....	353	.....
Portland, Ore	43,124	175	246
Providence, R. I	28,867	90	320
Reading, Pa	17,045	92	185
Richmond, Va	15,030	52	289
Rochester, N. Y	42,198	145	290
Salt Lake City, Utah	.....	76	.....
San Antonio, Tex	.....	21	.....
San Francisco, Calif	75,730	243	311
Scranton, Pa	.....	51	.....
Seattle, Wash	60,000	127	472
Spokane, Wash	21,846	79	277
Springfield, Mass	12,294	81	152
St. Louis, Mo	91,777	367	250
St. Paul, Minn	.....	132	.....
Syracuse, N. Y	32,666	126	259
Toledo, O	45,088	167	270
Trenton, N. J	.....	89	.....
Washington, D. C	52,792	103	512
Wilmington, Del	14,051	70	201
Worcester, Mass	13,125	45	292
Yonkers, N. Y	10,000	16	625
Youngstown, Ohio	25,054	70	358

*Service station figures from Chilton Co.

Automotive Service Associations in U. S.

Automotive Service Association of:

Brooklyn, N. Y.
Buffalo, N. Y.
Dallas, Texas.
Hartford County, Hartford, Conn.
Newark, N. J.
New York, N. Y.
Philadelphia, Pa.
Syracuse, N. Y.
Western Massachusetts, Springfield, Mass.

Automotive Service Bureaus

Service Bureau of Chicago Automobile Dealers Assn., Chicago, Ill.
Service Bureau of Cincinnati Automobile Dealers Assn., Cincinnati, Ohio.
Service Bureau of Detroit Automobile Dealers Assn., Detroit, Mich.
Service Bureau of Cleveland Automobile Manufacturers & Dealers Assn., Cleveland, Ohio.

Motor Vehicle Retail Trade

Dealers, Service Stations and Repair Shops, Garages, Charging Stations, Supply Stores

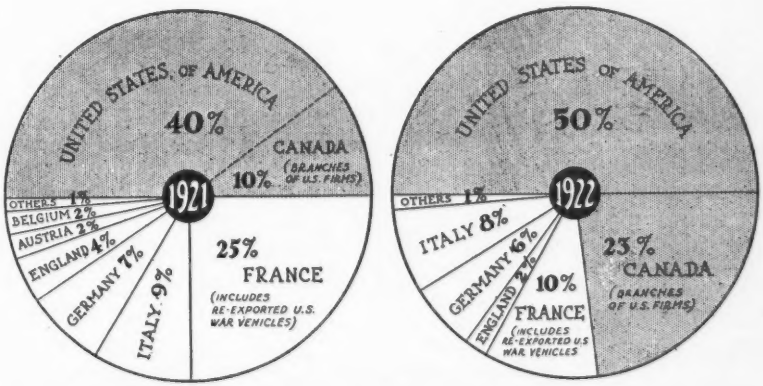
(Compiled as of Mar. 1, 1923, by Chilton Automobile Trade List)

STATE	Total Dealers	Dealers Handling Both Cars and Trucks	Dealers in Cars Exclusively	Dealers in Trucks Exclusively	Service Stations and Repair Shops	Garages	Charging Stations	Supply Stores	Number of Establishments
Ala	333	184	135	14	601	418	83	689	907
Ariz	152	95	46	11	234	170	22	233	319
Ark	324	200	112	12	512	454	59	555	698
Calif	1,969	886	903	180	3,507	2,350	145	2,925	4,907
Colo	567	339	197	31	882	712	153	947	1,161
Conn	530	244	244	42	809	596	19	909	1,179
Dela	96	69	21	6	209	137	23	217	268
D. of C	74	19	41	14	101	44	4	117	206
Fla	395	214	150	31	737	628	139	764	985
Ga	475	277	164	34	791	586	71	790	1,131
Ida	254	176	69	9	353	296	21	362	484
Ill	2,690	1,358	1,199	133	4,169	2,969	312	4,351	5,615
Ind	1,334	703	532	99	2,278	1,623	73	2,265	3,232
Iowa	1,800	1,063	655	82	2,692	2,188	123	2,634	3,317
Kan	1,247	683	486	78	1,961	1,542	470	2,137	2,624
Ky	539	308	202	29	729	589	73	731	994
La	264	166	72	26	526	392	28	514	672
Me	351	166	171	14	494	418	33	525	697
Md	460	266	154	40	706	520	98	717	940
Mass	1,084	531	487	66	2,021	1,360	177	2,234	2,892
Mich	1,548	840	640	68	2,286	1,859	144	2,379	3,173
Minn	1,595	874	615	106	2,074	1,610	89	1,909	2,751
Miss	234	150	74	10	350	258	31	354	453
Mo	1,111	603	430	78	2,060	1,597	173	2,049	2,701
Mont	358	233	103	22	495	430	30	510	652
Neb	1,060	679	334	47	1,588	1,318	74	1,553	1,983
Nev	77	38	34	5	126	91	13	111	152
N. H	257	153	95	9	417	349	65	420	508
N. J	961	440	434	87	1,682	1,236	53	1,643	2,352
N. Mex	122	75	43	4	215	166	5	195	277
N. Y	2,745	1,246	1,293	206	5,206	4,372	233	5,021	7,070
N. C	520	293	196	31	739	476	36	682	922
N. D	500	281	177	42	601	452	37	581	841
Ohio	2,366	1,230	977	159	3,878	2,648	365	4,168	5,115
Okla	742	431	261	50	1,099	755	60	1,135	1,487
Ore	415	238	153	24	771	548	31	593	981
Pa	3,207	1,599	1,388	220	5,013	3,887	248	5,253	6,615
R. I	148	59	76	13	246	150	6	261	376
S. C	304	173	118	13	470	263	28	394	595
S. D	617	394	194	29	770	631	55	780	984
Tenn	397	237	126	34	580	368	68	559	766
Tex	1,439	735	620	84	3,114	1,872	128	2,748	4,015
Utah	162	103	45	14	249	167	24	240	335
Vt	194	134	59	1	281	235	57	313	356
Va	495	283	177	35	669	385	50	669	864
Wash	645	376	222	47	1,192	759	33	899	1,547
W. Va	417	229	167	21	471	384	43	514	637
Wis	1,821	1,137	568	116	2,426	2,040	284	2,605	3,152
Wyo	143	88	44	11	150	128	13	159	194
Total, U. S.	**39,538**	**21,298**	**15,703**	**2,537**	**63,560**	**47,426**	**4,602**	**63,316**	**85,082**

1922 U. S. Motor Vehicle Exports

Total value U. S. automotive exports (Including motor vehicles, parts, engines and tires)	$125,642,852
Rank among all U. S. exports including raw materials	6th
U. S. Motor vehicles exported	78,549
Motor cars	67,096
Motor trucks	11,453
Motor vehicles shipped to U. S. territories	3,395
Canadian motor vehicles exported (Output of branches of U. S. companies)	37,958
Leading motor car foreign market	Australia
Leading motor truck foreign market	Belgium
Imports of motor vehicles	456

23% Gain in Position of American Motor Exports



U. S. Motor Vehicle Exports for 1922

(Figures from U. S. Bureau of Foreign and Domestic Commerce)

EUROPE	No. of Motor Cars	Val. of Motor Cars	No. of Motor Trucks	Val. of Motor Trucks	Val. of Motor Parts
Austria	8	$3,035	2	$768	$1,538
Azores and Madeira Is.	9	5,480	7	2,968	4,039
Belgium	4,785	1,836,284	2,824	735,650	404,518
Bulgaria	.....	.....	.....	.....	1,328
Czechoslovakia	40	16,456	5	2,122	5,620
Denmark	525	427,885	26	15,659	2,022,712
Esthonia	4	3,730	1	1,315	589
Finland	52	26,428	33	13,445	4,206
France	355	377,021	15	18,398	2,141,907
Germany	46	47,948	24	51,888	15,784
Gibraltar	17	19,979	.....	.....	4,237
Greece	157	100,856	8	3,232	46,565
Hungary	8	3,407	1	389	467
Iceland and Faroe Is.	4	4,278	.....	.....	4,019
Italy	246	133,067	32	7,212	76,640
Latvia	100	47,055	8	21,225	4,486
Lithuania	.....	.....	.....	.....	276
Malta, Gozo, and Cyprus Is.	79	37,199	5	2,736	9,528
Netherlands	688	648,612	89	51,358	95,975
Norway	1,176	496,624	229	85,701	111,129
Poland and Danzig	28	25,837	1	650	1,736
Portugal	62	69,812	3	1,404	30,225
Rumania	35	41,164	3	4,170	17,437
Russia in Europe	203	100,763	69	33,262	28,518
Spain	2,111	1,810,067	786	207,316	1,337,251
Sweden	3,063	1,859,961	387	132,988	205,018
Switzerland	255	316,632	.....	.....	26,288
Turkey in Europe	96	46,376	16	11,696	30,929
Ukraine	15	20,675	7	18,500	4,175
England	4,153	3,231,827	378	374,961	3,630,485
Scotland	77	62,692	4	6,080	6,616
Ireland	85	51,187	1	506	89,677
Yugoslavia, Albania, etc.	16	8,671	1	414	13,024
Total	**18,498**	**$11,881,008**	**4,965**	**$1,806,013**	**10,376,942**
NORTH AMERICA					
Canada, Maritime Provinces	425	442,628	7	5,419	91,888
Quebec and Ontario	8,736	9,095,558	1,076	1,600,484	16,541,523
Canada, Prairie Provinces	671	579,470	57	78,051	249,324
British Columbia and Yukon	384	452,025	117	186,775	162,348
British Honduras	12	7,878	1	354	3,541
Costa Rica	30	21,264	6	4,758	14,264
Guatemala	58	58,492	6	7,674	21,956
Honduras	34	22,417	11	16,802	28,368
Nicaragua	.....	.....	1	1,400	2,324
Panama	191	160,038	26	10,240	69,781
Salvador	57	73,076	1	3,220	18,163
Greenland	.....	.....	.....	.....	.....
Mexico	7,279	4,640,801	983	617,085	902,812
Miquelon and St. Pierre Is.	.....	.....	.....	.....	48
Newfoundland and Labrador	26	27,379	.....	.....	19,057
Total	**17,903**	**$15,581,026**	**2,292**	**$2,532,262**	**$18,125,397**
WEST INDIES					
Bermuda	.....	.....	.....	.....	296
Barbadoes	27	14,371	10	15,171	20,134
Jamaica	378	262,661	113	63,685	92,912
Trinidad and Tobago	120	64,156	43	25,587	64,289
Other Brit. West Ind.	175	124,219	73	74,406	30,887
Cuba	1,689	1,229,336	303	143,407	724,137
Dominican Republic	183	118,913	28	28,049	113,699
Dutch West Indies	46	21,831	8	7,967	14,046
French West Indies	17	8,801	1	364	20,355
Haiti	107	71,528	10	9,899	40,049
Virgin Islands of U. S.	11	4,998	4	1,553	8,123
Total	**2,753**	**$1,920,814**	**593**	**$370,088**	**$1,128,927**

	No. of Motor Cars	Val. of Motor Cars	No. of Motor Trucks	Val. of Motor Trucks	Val. of Motor Parts
SOUTH AMERICA					
Argentina	2,497	$2,307,067	58	$68,180	$3,357,170
Bolivia	12	19,156	7	2,812	11,502
Brazil	1,672	1,376,552	65	83,767	996,003
Chile	150	107,276	113	61,810	119,791
Colombia	172	137,241	38	60,573	93,637
Ecuador	25	18,816	10	14,266	18,002
Falkland Islands	.....	.....	.....	.....	.....
British Guiana	60	30,987	1	358	15,799
Dutch Guiana	24	12,249	5	2,089	8,330
French Guina	4	1,932	1	404	715
Paraguay	2	1,304	.....	.....	176
Peru	62	69,613	80	47,110	102,970
Uruguay	741	415,150	156	53,313	163,136
Venezuela	449	344,190	32	25,598	83,744
Total	**5,870**	**$4,841,533**	**566**	**$420,280**	**$4,970,975**
ASIA					
Aden	5	3,658	1	1,400	2,842
Armenia and Kurdistan	35	13,081	4	2,803	826
British India	1,079	869,763	106	129,445	314,839
Ceylon	152	107,131	11	25,074	17,158
Straits Settlements	164	132,509	.....	.....	66,328
Other British East Ind	1	1,445	.....	.....	773
China	579	471,921	62	47,995	96,934
Chosen	7	2,962	.....	.....	4,835
Java and Madura	379	374,989	2	7,145	157,442
Other Dutch East Ind	22	22,027	7	6,761	22,914
Far Eastern Republic	.....	.....	.....	.....	862
French Indo-China	11	4,577	1	1,080	8,555
Greece in Asia	10	3,920	.....	.....	2,650
Hejaz, Arabia, etc	7	5,839	.....	.....	25,580
Hongkong	59	89,180	12	22,676	28,090
Japan	1,271	783,291	1,001	911,296	456,386
Kwangtung, leased territory	86	29,243	6	4,220	8,011
Palestine and Syria	999	576,528	52	37,054	119,310
Persia	27	9,830	.....	.....	9,769
Philippine Islands	550	457,927	29	31,292	209,646
Russia in Asia	.....	.....	.....	.....	.....
Siam	33	32,069	4	7,888	7,012
Turkey in Asia	16	6,275	.....	.....	121
Other Asia	.....	.....	.....	.....	.....
Total	**5,492**	**$3,998,165**	**1,298**	**$1,236,129**	**$1,560,883**
OCEANIA					
Australia	11,236	8,716,930	1,059	1,211,199	1,044,539
British Oceania	9	4,821	.....	.....	4,524
French Oceania	15	9,493	1	590	6,935
New Zealand	1,840	1,551,277	191	331,200	330,045
Other Oceania	19	11,199	.....	.....	6,999
Total	**13,119**	**$10,293,720**	**1,251**	**$1,542,989**	**$1,393,042**
AFRICA					
Abyssinia	.....	.....	.....	.....	.....
Belgian Kongo	68	24,732	82	29,760	59,060
British West Africa	130	120,374	105	101,476	114,705
British South Africa	2,043	1,869,555	77	129,398	336,720
British East Africa	93	70,459	.....	.....	25,108
Canary Islands	106	92,317	46	30,694	58,377
Egypt	374	179,881	27	11,571	63,613
Algeria and Tunis	45	17,368	8	2,913	1,910
Other French Africa	50	21,092	12	5,879	21,061
Italian Africa	.....	.....	.....	.....	.....
Liberia	1	685	1	500	77
Madagascar	.....	.....	.....	.....	.....
Morocco	128	62,740	7	3,074	28,803
Portuguese East Africa	22	16,931	1	800	6,418
Other Portuguese Africa	76	35,956	111	45,784	20,976
Spanish Africa	20	21,460	1	1,080	5,038
Total	**3,156**	**$2,533,550**	**478**	**$362,947**	**$741,866**
†Grand Total	**66,791**	**$51,049,816**	**11,443**	**$8,270,708**	**$38,298,032**

†Does not include electrics; for grand totals incl. electrics, see page 57.

U. S. Export of Automobiles 1911-1922

105% Gain in 1922 in Number of Vehicles Exported Compared with 1921

(Figures from U. S. Bureau of Foreign and Domestic Commerce)

Year Ended December 31	Passenger Cars		Motor Trucks		Passenger Cars and Motor Trucks	
	Number	Value	Number	Value	Number	Value
1911	not given	separately	not given	separately	15,807	$15,924,361
1912	"	"	"	"	23,720	23,703,989
1913	25,880	$25,343,644	1,009	$ 1,686,807	26,889	27,030,451
1914	22,335	19,521,708	3,430	8,985,756	25,765	28,507,464
1915	41,864	35,045,090	22,094	59,839,303	63,958	94,884,393
1916	61,922	43,725,087	18,921	52,948,021	80,843	96,673,108
1917	65,756	51,872,905	14,479	36,755,236	80,235	88,628,141
1918	36,936	36,278,292	10,308	26,814,952	47,244	63,093,244
1919	67,145	73,700,527	15,585	35,425,437	82,730	109,125,964
1920	142,508	165,255,921	29,136	46,775,781	171,644	212,031,702
1921	30,594	32,453,282	7,504	10,364,393	38,094	42,817,675
*1922	66,791	51,049,816	11,443	8,270,708	78,234	59,320,524

*Does not include electrics; for grand totals incl. electrics, see page 57.

Shipment of Automobiles to Non-Contiguous Territories

(Figures from U. S. Bureau of Foreign and Domestic Commerce)

	1920—Passenger		1920—Trucks		1920—Total	
	No.	Value	No.	Value	No.	Value
Alaska	85	$97,053	54	$51,339	149	$148,392
Hawaii	2,860	3,011,547	495	687,390	3,355	3,698,937
Porto Rico	1,544	2,075,173	427	1,064,207	1,971	3,139,380
Total	4,489	$5,183,773	976	$1,802,936	5,475	$6,986,709

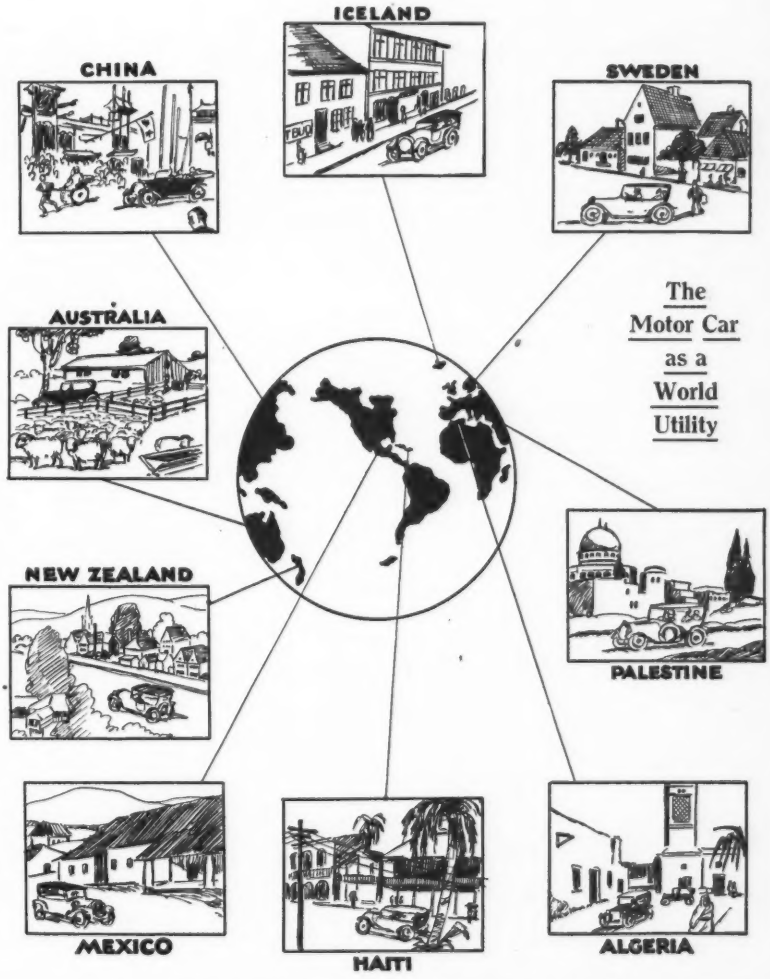
	1921—Passenger		1921—Trucks		1921—Total	
	No.	Value	No.	Value	No.	Value
Alaska	70	$75,242	15	$10,279	85	$85,521
Hawaii	1955	1,873,562	220	346,082	2,175	2,219,644
Porto Rico	547	615,367	134	195,578	681	810,945
Total	2,572	$2,564,171	369	$551,939	2,941	$3,116.110

	1922—Passenger		1922—Trucks		1922—Total	
	No.	Value	No.	Value	No.	Value
Alaska	117	$103,421	69	$66,808	186	$170,229
Hawaii	1,955	1,634,932	206	229,955	2,161	1,864,887
Porto Rico	932	786,492	115	165,132	1,047	951,624
Samoa	1	390	.....	.....	1	390
Total	3,005	$2,525,235	390	$461,895	3,395	$2,987,150

Imports of Automobiles 1911-1922

Year Ended December 31	Passenger Cars and Motor Trucks		Year Ended Dcember 31	Passenger Cars and Motor Trucks	
	No.	Value		No.	Value
1911	972	$2,098,481	1917	78	$112.440
1912	868	1,999,587	1918	73	39,733
1913	492	1,154,873	1919	117	123.025
1914	296	493,305	1920	926	1,026,518
1915	221	327,296	1921	522	876,163
1916	1429	770,319	1922(a)	456	756,516

(a) Estimated from 11 months, 1922, which totaled 419 motor vehicles valued at $693,480.



Consular and other reports from abroad tell of a wide range of usefulness of the motor car in all parts of the world: in China for quick transportation between cities, in Australia for supervising ranches, in New Zealand for the school superintendent, in Mexico for the business man, in Iceland to give swifter travel than is afforded by ponies, in Haiti to aid the commercial traveler, in Sweden to replace the ox-cart, in Palestine to compete with the leisurely camel, in Algeria to bring passengers and goods to port.

Leading Motor Vehicle Customers of U. S. A., 1922

Australia Buys Most Cars

(Figures from Automotive Division, U. S. Department of Commerce)

	No.	Value
 Australia	11,236	$8,716,930
 Canada	10,214	10,569,481
 Mexico	7,279	4,640,801
 Belgium	4,785	1,836,284
 United Kingdom	4,315	3,345,706
 Sweden	3,063	1,859,961
 Argentina	2,497	2,307,067

Belgium Largest Truck Purchaser

(Figures from Automotive Division, U. S. Department of Commerce)

	No.	Value
 Belgium	2,824	$735,650
 Canada	1,259	1,870,929
 Australia	1,059	1,211,199
 Japan	1,001	911,296
 Mexico	983	617,085
 Spain	786	207,316
 Sweden	387	132,988

Value of Automobile Parts Exported Annually

(Not Including Engines and Tires)

(Figures from U. S. Bureau of Foreign and Domestic Commerce)

	1916*	1917*	1918*	1919†	1920†	1921†	1922†
Europe	$12,381,657	$12,117,721	$10,974,888	$10,472,943	$35,776,877	$12,537,835	$10,376,942
North America	8,144,091	10,489,084	13,933,706	19,893,741	27,411,318	14,031,204	19,254,324
South America	469,309	2,160,830	4,556,551	5,967,907	12,494,584	5,158,108	4,970,975
Asia	538,140	974,831	1,007,440	2,399,261	4,356,225	184,904	1,560,883
Oceania	637,761	1,165,703	1,558,764	2,618,173	3,791,849	1,882,150	1,393,042
Africa	365,527	512,744	901,657	1,209,651	2,367,160	927,953	741,866
Total	**$22,536,485**	**$27,420,913**	**$32,933,006**	**$42,561,676**	**$86,198,013**	**$34,722,154**	**$38,298,032**

*Fiscal years. †Calendar years.

Value of Automobile Engines Exported Annually

(Figures from U. S. Bureau of Foreign and Domestic Commerce)

	1915*	1916*	1917*	1918*	1919†	1920†	1921†	1922†
Europe	$1,323,144	$1,519,200	$992,321	$641,992	$102,578	$339,008	$120,349	$1,378,647
North America	72,232	1,102,618	1,809,343	2,751,671	4,553,778	4,555,063	1,605,411	3,083,098
South America	2,084	4,781	1,062	722,172	8,752	12,505	72,762	666,304
Asia	345	267	1,664	2,075	50,645	98,021	10,205	6,129
Oceania	3,955	3,536	7,521	7,639	20,691	22,846	10,980	4,140
Africa	574	1,021	6,010	1,708	1,897	4,413	1,413	436
Total	**$1,393,334**	**$2,631,414**	**$2,817,921**	**$4,127,257**	**$4,635,763**	**$5,031,856**	**$1,821,120**	**$5,138,754**

*Fiscal Year. †Calendar Year.

Value of Automobile Tires Exported Annually

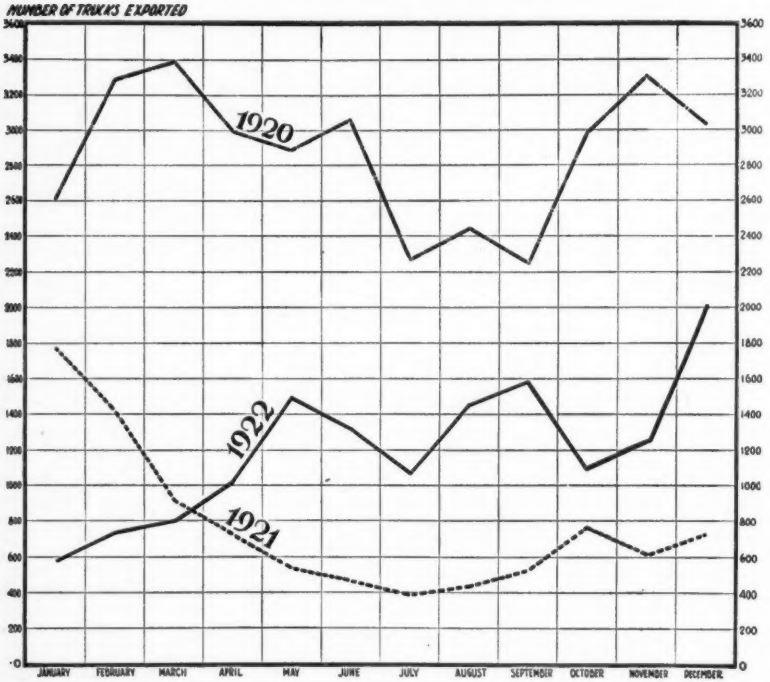
(Figures from U. S. Bureau of Foreign and Domestic Commerce)

	1916*	1917*	1918*	1919†	1920†	1921†	1922†
Europe	$10,992,184	$3,480,114	$1,460,518	$11,907,480	$4,124,210	$5,895,215	$7,614,159
North America	2,184,874	3,186,265	4,474,713	5,188,317	9,346,968	4,632,588	4,608,248
South America	1,050,398	2,596,936	3,432,181	4,986,024	7,391,010	1,785,363	2,863,701
Asia	477,895	810,300	1,194,551	2,970,464	5,081,831	1,524,811	1,988,747
Oceania	2,896,401	1,832,244	2,662,422	3,177,431	6,218,151	1,569,934	1,703,762
Africa	334,475	424,342	753,286	694,943	2,920,157	550,604	1,119,795
Total	**$17,936,227**	**$12,330,201**	**$13,977,671**	**$28,924,659**	**$35,082,327**	**$15,958,515**	**$19,898,412**

*Fiscal Years. †Calendar Years.

American Truck Exports Rally Sharply

(Figures for U. S. and Canada Combined)



Need for freight transportation by motor truck is evidently being felt throughout the world, as indicated by the rapid climb in American truck exports during December, 1922.

1922 Canadian Motor Vehicle Exports

(Figures from Report of the Trade of Canada)

	Passenger Cars		Motor Trucks		Parts
	No.	Value	No.	Value	Value
United Kingdom	9,867	$7,051,544	147	$73,634	$441,147
United States	138	74,263	6	4,189	80,592
Aden	18	7,281	.....	.....	4,510
Argentine	2,105	1,350,099	.....	.....	80,603
Australia	10,868	5,413,949	1,574	662,549	597,193
Brazil	244	198,128	.....	.....	.....
India	1,998	994,945	154	66,218	200,901
Ceylon	277	121,116	77	30,391	10,223
Straits Settlements	188	76,491	36	16,158	45,941
British East Africa	126	50,677	27	11,126	26,126
British South Africa	2,775	1,386,392	234	96,705	138,909
British West Africa	37	14,735	1	1,372	29,733

American Exports of Cars Pass 1920 Mark

(Figures for U. S. and Canada Combined.)

Note that the 1922 curve of exports for December rises above the same period in 1920. The grouping together here of combined U. S. and Canadian exports is appropriate because the Dominion plants are subsidiary companies of U. S. concerns and accordingly the two constitute a single manufacturing group.

(Continued from preceding page)

	Passenger Cars		Motor Trucks		Parts
	No.	Value	No.	Value	Value
Chile	22	$ 20,647	.....	.....	.....
China	138	120,867	.....	.....	.....
Cuba	38	35,268	.....	.....	.....
Dutch East Indies	670	325,670	51	$ 22,428	$ 80,509
Egypt	72	37,448	.....	.....	.....
Hongkong	23	21,783	.....	.....	.....
Japan	184	147,740	.....	.....	.....
Mexico	147	156,945	.....	.....	.....
Netherlands	182	128,750	.....	.....	.....
New Zealand	2,848	1,504,172	216	90,912	90,684
Norway	149	114,587	.....	.....	.....
Portugal	22	27,180	.....	.....	.....
Siam	20	9,781	25	10,350	8,258
Spain	403	383,389	.....	.....	.....
Sweden	609	327,219	.....	.....	.....
Turkey	22	14,251	.....	.....	.....
Uruguay	85	65,798	.....	.....	.....
Fiji Islands	.....	.....	.....	.....	3,691
Other	1,119	878,465	16	8,487	87,078
Total	**35,394**	**$21,059,574**	**2,564**	**$1,095,519**	**$1,926,098**

1922 U. S. Truck Exports by Capacities

(Figures from Automotive Division, U. S. Department of Commerce)

	Up to 1 Ton	1 to 2½ Tons	Over 2½ Tons	Total
January	222	220	22	464
February	286	141	27	454
March	366	173	49	588
April	580	226	73	879
May	935	182	86	1,203
June	780	217	124	1,121
July	552	186	84	822
August	827	369	66	1,262
September	977	282	36	1,295
October	537	188	66	791
November	558	207	38	803
December	1,522	197	52	1,771
Total	**8,142**	**2,588**	**723**	**11,453**

1922 U. S. Car Exports by Wholesale Prices*

(Figures from Automotive Division, U. S. Department of Commerce)

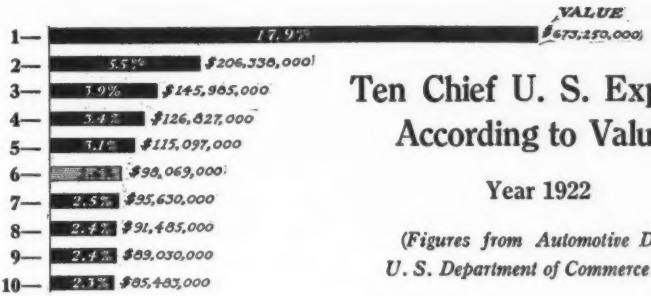
	Up to $800	$801 to $2,000	$2,001 or More	Total
January	1,330	994	83	2,407
February	1,890	1,096	110	3,096
March	2,574	1,732	166	4,472
April	4,023	2,211	204	6,438
May	4,529	2,096	173	6,798
June	5,285	2,278	255	7,818
July	3,568	1,837	195	5,600
August	3,931	2,026	186	6,143
September	3,852	1,857	153	5,862
October	3,853	2,408	185	6,446
November	3,096	2,040	140	5,276
December	4,297	2,266	177	6,740
Total	**42,228**	**22,841**	**2,027**	**67,096**

*With inland shipping charges added.

Canadian Motor Vehicle Imports Calendar Year 1922

(Source: Report of the Trade of Canada.)

	No.	Value
Passenger Cars:		
United Kingdom	51	$ 211,882
United States	10,649	11,291,834
Other	5	12,999
Total	**10,705**	**$11,516,715**
Motor Trucks:		
United Kingdom	23	$ 77,169
United States	862	1,564,150
Other	1	$ 2,419
Total	**886**	**$1,643,738**
Parts:		
United Kingdom		55,564
United States		$13,682,947
Other		5,985
Total		**$13,744,496**



Ten Chief U. S. Exports According to Value

Year 1922

(Figures from Automotive Division, U. S. Department of Commerce.)

Rank	Commodity*	Value
1.	Unmanufactured cotton	$673,250,000
2.	Wheat	206,338,000
3.	Leaf Tobacco	145,985,000
4.	Gasoline, naphthas, and other light products of distillation	126,827,000
5.	Corn	115,097,000
6.	**Automobiles and parts†**	**98,069,000**
7.	Coal, coke, and briquettes	95,630,000
8.	Lard	91,485,000
9.	Refined copper in ingots, bars, and other forms	89,030,000
10.	Wheat flour	85,483,000

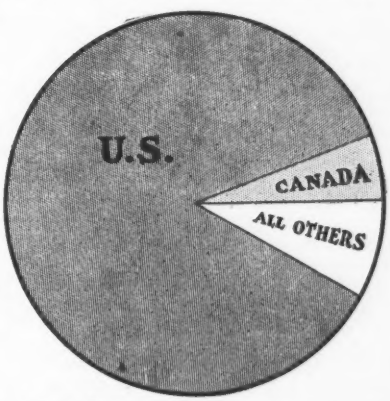
†Does not include engines and tires which bring the total to $125,642,000.

U. S. Makes 90% of World's Motor Vehicles

3½% of Remainder Produced in U. S.-Owned Canadian Factories

(The following table of figures, though not including all of the world's production, is nevertheless within a fraction of a percent of the total. U. S. figures are compiled by the Department of Commerce, Canadian by Automotive Industries of Canada, and the estimates on the other countries are by the U. S. Department of Commerce and the National Automobile Chamber of Commerce.)

United States	2,561,000
Canada	98,000
France	75,000
United Kingdom	50,000
Germany	46,300
Italy	15,000
Czechoslovakia	3,000
Belgium	2,600



(Chart shows predominance of American manufacture of motor vehicles.)

Monthly Trend of U. S. Passenger Car Exports, 1913-1922

(Figures from Monthly Summary of Foreign Commerce of the U. S.)

	1913	1914	1915	1916	1917	1918	1919	1920-a	1921	1922-c
January	2,070	2,481	1,803	4,520	4,733	4,325	2,137	8,014	5,819	2,407
February	2,388	2,837	2,230	5,662	3,939	3,584	3,041	11,221	2,492	3,096
March	2,734	3,538	2,429	5,542	5,755	4,249	3,445	14,005	2,019	4,471
April	2,682	3,239	3,078	6,242	7,300	4,534	5,226	14,367	2,469	6,438
May	2,895	3,157	4,821	6,278	6,726	2,801	5,218	14,990	2,479	6,798
June	2,039	1,982	4,418	4,905	7,582	3,098	7,879	12,733	1,964	7,818
July	1,720	1,265	4,113	5,259	5,089	3,442	4,679	13,320	2,224	5,600
August	1,936	385	3,840	4,826	3,605	2,710	6,283	11,154	2,237	6,143
September	1,711	646	4,299	3,585	4,038	2,555	6,383	10,432	2,197	5,862
October	1,697	732	3,479	4,880	5,536	1,709	7,898	11,562	2,329	6,446
November	1,707	776	3,690	5,337	5,006	2,226	7,743	11,486	2,075	5,276
December	2,301	1,297	3,664	4,886	6,447	1,703	7,213	9,234	2,646-*b*	6,740

(a) In 1920 the Government began classifying chassis separately, but they are included here so as to be comparable with preceding years.

(b) Figures for this and later months are preliminary and subject to slight revision.

(c) Figures for January, 1922, and later months do not include electric passenger cars included in previous years.

Monthly Trend of U. S. Motor Truck Exports, 1913-1922

(Figures from Monthly Summary of Foreign Commerce of the U. S.)

	1913-(a)	1914	1915	1916	1917	1918	1919	1920	1921	1922
January	87	45	935	1,269	1,340	1,170	917	1,721-*b*	1,559	464-*d*
February	83	57	1,002	2,063	766	766	1,403	2,889	1,095	454
March	108	50	1,339	1,875	1,040	626	1,233	3,127	610	590
April	84	52	2,267	1,790	1,031	657	1,038	2,659	609	879
May	141	99	2,426	1,717	1,764	859	1,162	3,194	462	1,203
June	115	90	2,990	1,416	1,245	829	1,767	2,697	418	1,121
July	44	50	2,471	1,243	1,388	601	905	2,042	339	822
August	68	66	1,614	1,565	929	909	1,282	2,034	381	1,262
September	48	128	2,227	1,835	1,314	1,284	1,384	1,747	472	1,295
October	79	672	1,606	1,144	1,359	737	1,301	2,435	595	791
November	64	842	1,553	1,675	1,496	974	1,712	2,340	429	803
December	88	1,279	1,664	1,329	807	896	1,481	2,247	511-*c*	1,771

(a) Returned as "Commercial automobiles," to and including 1921; subsequently as "Motor trucks and buses, except electric."

(b) Figures for January, 1920, and later months include chassis previously included under "Automobiles, parts of."

(c) Figures for this and later months are preliminary and subject to slight revision.

(d) Figures for January, 1922, and later months do not include electric motor trucks included in previous years.

STATE MOTOR VEHICLE LAWS

Sound Underlying Principles and Uniformity Needed—Motor Vehicle Conference Committee Unites Motor Vehicle and Accessories Manufacturers, Dealers and Users Upon Common Platform

DURING the course of the year 1923 the Legislatures of every one of the forty-eight states, with the exception of those of Kentucky, Louisiana, Maryland, Mississippi and Virginia will hold regular sessions of their state legislatures.

Indeed, as this pamphlet goes to press the lawmakers of 41 state legislatures have convened, while the legislatures of 16 of these states have already completed their activities and adjourned, most of them until 1925.

Up to that time a total of approximately two thousand bills whose contents were directly or indirectly of serious concern to the production, use and sale of the motor vehicle, had been introduced for legislative consideration.

The subject matter of these measures involved such vital considerations as—

1. Special Taxation for Motor Vehicles, including gasoline taxation, increased registration fees, etc.
2. Restrictions on Motor Vehicle Operation, especially size, weight and speed limitations.
3. State Regulation of Motor Vehicles when used as Common Carriers.
4. Licensing of Operators.
5. Compulsory and Forbidden Equipment.
6. Compulsory Insurance as a prerequisite to motor vehicle operation.
7. Licensing of Auto Mechanics.
8. Garage Keepers' Lien.
9. Anti-theft Measures.
10. Compulsory Stopping at Grade Crossings.

Obviously, many measures dealing with these subjects are oftentimes based on prejudice, misinformation or lack of information. With a view, therefore, to placing at the disposal of law makers the facts involved, the Motor Vehicle Conference Committee has endeavored to gather information having a bearing upon the subjects enumerated and to formulate sound and equitable principles which, in its judgment, should underlie state laws dealing with them.

These principles have then been communicated to the law makers through the medium of Sub-Committees, which the parent body has created in each state of the Union. As a nucleus each state sub-committee contains representatives of the five component organizations constituting the main body, and in addition representatives from state-wide organizations which in each state are directly or indirectly concerned in motor vehicle and highway legislation.

Noteworthy examples of the manner in which the views of the Conference Committee have been laid first before its state sub-committees and by them before state lawmakers are a series of three pamphlets prepared on the subject of Taxation, Operating Restrictions and Common Carrier Regulation. The recommendations of these pamphlets are set forth on the following pages:

Fundamental Principles Which Should Govern Special Taxation for Motor Vehicles

REGISTRATION FEES, GASOLINE TAXES, ETC.

NOTE.—A pamphlet containing a digest of state laws providing for Special Taxation of Motor Vehicles in force January 1st, 1923, can be obtained from the Motor Vehicle Conference Committee, 366 Madison Avenue, New York City).

Federal, State and Municipal Law-makers and Governing Bodies are turning to motor vehicle manufacture, sale and use as fertile fields for raising a big share of the annual revenues needed to finance governmental activities.

In doing so they are inclined to treat the motor vehicle as peculiarly deserving of special taxes which, however, are rarely based upon sound theories of economics or equity.

After careful investigation of the entire subject therefore the Conference Committee recommends the following fundamental principles to underlie all and any special taxation of the motor vehicle:

1. **The State should be the sole taxing agency—Federal, County and Municipal Governments to be excluded from the field.**
2. **The total amount of taxation should be limited to the sum of money necessary for:**
   a. **Administration of State Motor Vehicle Department.**
   b. **Maintenance of Improved Highways of the State.**
3. **The term "maintenance" and the items which it shall include should be sharply defined and strictly limited in application.**
4. **No money derived from special taxation of the motor vehicle should be spent for maintenance of highways unless such highways are located where the highway transportation needs of the state require and unless such highways are built of materials and in a manner to meet these needs.**
5. **The total amount of justified taxes should be raised in a manner which most equitably distributes the cost among the various classes of vehicles and the units within each class.**
6. **All money raised by such special taxes should be placed in the State Motor Vehicle Maintenance Fund and spent by the State or under State supervision on the improved highways in the order of their importance and in accordance with their maintenance needs.**

The money necessary to erect schools, and maintain school systems; provide fund for parks, police departments, fire departments, etc., etc., are exacted from Society-as-a-Whole in the shape of general taxes. No special levies based upon the number of children in a family, the amount of property to be protected or similar measures of use are made the basis of special or extra taxation of various classes presumed to be especially benefited by public improvements or governmental activities.

In the development and maintenance of improved highways for animal-drawn transportation the theory that Society-as-a-Whole benefited by the expenditure of money for the purpose led the law-makers to take the needed money out of the general purse.

With the growth of motor vehicle transportation on the highways, however, a new theory has been advanced, namely that such transportation should pay every penny of the burden annually.

The Conference Committee regards such a theory as unwise economically and entirely unfair and unjustly hampering to the logical and legitimate growth to which the motor vehicle is entitled.

The Committee believes that the best interests of all concerned will best be served by:

General taxation for highway construction; special taxation of motor vehicles for highway maintenance.

On the assumption that the highway maintenance costs for a State will aggregate $..... next year, the question arises as to the most scientific and fair method to employ in distributing this charge among the vehicles using the highways thus to be maintained.

Suggestions of the Proposed Uniform Vehicle Law

The Proposed Uniform Vehicle Laws prepared by a Joint Committee representing the American Association of State Highway Officials, National Automobile Chamber of Commerce, American Automobile Association and Federal Highway Council and endorsed by the Motor Vehicle Conference Committee advocates for Motor Vehicles, Tractors, Trailers and Semi-Trailers registration fees based on horse-power and gross weight.

Following is Article VII of the Proposed Uniform Vehicle Law dealing with the subject of Registration, Licensing and Permit Fees.

Please note that the amounts given in the following tables are merely suggestions. They may be too large for one State or too small for another. The vital thing is to make the various charges equitable and limit their total amount to the improved highway maintenance requirements, which a State may justifiably levy upon the motor vehicle.

Article VII

Registration, Licensing and Permit Fees

Section 1. Registration Fees
- *a.* Motor Vehicles
- *b.* Tractors
- *c.* Trailers and Semi-Trailers
- *d.* Motorcycles
- *e.* Motorcycle Sidecars
- *f.* Horse-Drawn Vehicles
- *g.* Motor Vehicle Manufacturers and Dealers
- *h.* Trailer, Semi-Trailer and Motorcycle Manufacturers and Dealers
- *i.* Pupils' Permits
- *j.* Operators' and Chauffeurs' Licenses
- *k.* Duplicate Licenses
- *l.* Duplicate Plates

Section 2. Basis of Horsepower Fees
- *a.* Internal Combustion
- *b.* Steam Vehicle
- *c.* Electric Vehicle

Section 3. Basis of Weight Fees
Section 4. Disputed Classifications
Section 5. Time Covered by Fees
Section 6. Fees to Cover Everything

(*Continued on following page*)

(*Continued from*

Section 1—Fees and Amounts Thereof

The fees for the registration and licensing of vehicles and for the registration and licensing of operators, chauffeurs and pupils, as hereinbefore required, shall be in accordance with the following schedule:

a.—Motor Vehicles

Equipped with	Per h. p.	Per 100 lb. Gross Weight of Vehicle and load
Pneumatic tires	25 cents	25 cents
Solid tires	25 cents	35 cents
Iron, steel or other hard tires	25 cents	50 cents

Motor vehicles used for the purpose of transporting persons for hire shall pay double the above rates.

b.—Tractors

Equipped with	Per h. p.	Per 100 Lb. Weight
Pneumatic tires	25 cents	25 cents
Solid tires	25 cents	35 cents
Iron, steel or other hard tires	25 cents	50 cents

Tractors for agricultural purposes shall pay one-tenth of the above rates.

c.—Trailers and Semi-Trailers

Equipped with	Per 100 Lb. Gross Weight of Vehicle and load
Pneumatic tires	15 cents
Solid tires	25 cents
Iron, steel or other hard tires	35 cents

d.—Motorcycles ..... $5.00 each

e.—Motorcycle Sidecars ..... $5.00 each

f.—Horse-drawn Vehicles (Except those used for agricultural purposes and for transportation of passengers not for hire.) Weighing *not more* than 1,000 lbs., unloaded $3.00

Weighing more than 1,000 lbs., unloaded $3.00

for first 1,000 lbs. and 50c. for each additional 100 lbs. weight of vehicles.

Horse-drawn vehicles used *solely* for agriculture shall pay one-half of the above rates.

g.—Motor Vehicle and Tractor Manufacturers and Dealers

Registration and first five sets or pairs of plates $25.00

Each additional set or pair of plates 2.00

h.—Trailer, Semi-Trailer and Motorcycle Manufacturers and Dealers

Registration and first five plates $20.00

Each additional plate 2.00

i.—Pupils' Permits ..... $1.00 each

j.—Operators' and Chauffeurs' Licenses ..... $2.00 each

k.—Duplicate Licenses ..... $ .50 each

l.—Duplicate Plates ..... $1.00 each

Section 2—Basis of Horsepower Fees

For the purpose of charging fees based upon the horsepower of a motor vehicle or tractor the following provisions shall be used:

a. "*Internal Combustion Engine.*"—In the computation of fees based on the horsepower of vehicles propelled by internal combustion engines, except motorcycles, said horsepower shall be computed and recorded upon the following formula known as the "National Automobile Chamber of Commerce Formula:"

"Square of the bore of the cylinders in inches, multipled by number of cylinders, divided by 2½ ($D^2xN \div 2½$)."

preceding pages)

b. "Steam Vehicles."—In the computation of fees for all vehicles propelled by steam the horsepower rating shall be based on the system of rating adopted by the United States Government.

c. "Electric Vehicles."—For vehicles propelled by electricity the rating shall be the normal horsepower designated by the manufacturers of the electric motor or motors.

Section 3—Basis of Weight Fees

In the computation of fees based on gross weight, said gross weight shall, in the case of freight or merchandise vehicles, be the actual weight of the vehicle in pounds plus the manufacturer's rated load capacity, and in the case of passenger vehicles shall by the actual weight of vehicles plus the sum of the adult seating capacity multiplied by 150 pounds.

Section 4—Disputed Classifications

The Vehicle Commissioner shall have the authority, in disputed cases, to determine the classification in which any vehicle belongs and the amount of the fee which shall be paid therefor.

Section 5—Time Covered by Fees

The fee for an operator's license shall be good until said license is revoked. All other charges above prescribed shall be for a calendar year, provided that the certificate or license upon which they are based is issued prior to April 1st of said year. If, however, said certificate or license be issued after April 1st and before July 1st the charge shall be three-quarters of that for the calendar year; if after July 1st and before October 1st, one-half, and if after October 1st, one-fourth.

Section 6—Fees to Cover Everything

The foregoing fees shall be paid to the Vehicle Commissioner at the time of issuance of said registration certificates, permits or licenses. They shall include all costs of registration, issuance of permits, licenses and certificates and the furnishing of registration plates, and shall be in lieu of all other State or local taxes, registration or license fees, privilege taxes or other charges.

GASOLINE TAXES

Gasoline consumption is perhaps a fairly accurate and practicable measure of highway use. Consequently, many persons regard (1) a single sliding-scale tax on gasoline consumption or (2) an annual flat rate tax on horsepower and gross weight combined with a sliding-scale gasoline tax as the most scientific and equitable basis for obtaining contributions from any one motor vehicle for a State's Motor Vehicle Maintenance Fund.

The gasoline tax question, however, apart from other objections, is proving a super-tax on motor vehicle use and should be removed or its further extension opposed unless the annual proceeds from this tax as a single tax or in conjunction with other taxes are made to conform to the amount which properly and equitably should be levied upon the motor vehicle using the highways of a State.

DRIVERS' LICENSES

The exaction of high fees for drivers' licenses and the requirement that these shall annually be renewed at a high fee are also being employed in many States as sources of revenue.

This practice should be discontinued and further extension of the proposition discouraged. A driver's license should be good until revoked; the fee for the license made to approximate the cost of issuance, and under no circumstances should it be made the means of raising money.

THE MAIN CONSIDERATION

Irrespective of the particular form of special taxation any State may adopt—whether gasoline taxes, annual registration fees based on horse-power and weight or other factors, etc.—the all-important thing is that the aggregate amount of these special taxes upon the motor vehicle in any one year shall not be more than is necessary to maintain the improved highways of the State.

Recommended Restrictions on the Operation of Motor Vehicles

NOTE.—A copy of the pamphlet from which these recommendations for state laws dealing with restrictions for the operation of motor vehicles have been taken can be obtained from the Motor Vehicle Conference Committee, 366 Madison Avenue, New York City. In addition to these recommendations the pamphlet contains: Digest for State Laws in Force January 1, 1923. Suggestions for Uniform State Laws.

In behalf, first, of the safety and convenience of vehicular and pedestrian movement on the highway; and, second, to prevent uneconomic and unjustifiable wear and tear of highways, it has been found necessary to impose size, weight and speed limitations upon motor vehicle use.

Obviously, among the various kinds of highways and highway surfaces and, indeed, among the various highways of a certain kind there are strips of mileage which will carry bigger, heavier and more swiftly moving vehicles than others. So, too, upon any one strip of some highways there are times of the year or conditions of weather when restrictions should be lower than ordinarily deemed necessary.

This at once raises the following questions:

a. Shall the dimensions, weights and speeds of motor vehicles and their loads be reduced to the capacities of the weakest highways or parts thereof?

—OR—

b. Shall all highways and parts thereof be lifted up to standards of improvement adequate to carry the biggest, heaviest and swiftest loads that users of motor vehicles desire to place upon them?

The Motor Vehicle Conference Committee believes that between these two extremes lies a compromise which motor vehicle manufacturers in designing their vehicles and highway engineers in building their roads and bridges and public authorities in maintaining and regulating traffic upon them would do well to follow.

Size Restrictions

1. Width, including load, 96 inches. (Traction Engines 108 inches.)
2. Height, including load, 12 feet 6 inches.
3. Length, including load:
   a. Single vehicle, 30 feet.
   b. Combination of vehicles, 85 feet.

NOTE.—From the foregoing it is apparent that in order to admit of the safe passage of two vehicles each of which with its load is 96 *inches wide, a highway at least* 20 *feet in width is desirable.*

Weight Restrictions

1. Single vehicular unit of four wheels or less. (Tractors and semi-trailers to be regarded as separate units)..... 28,000 pounds
2. Any one axle of the vehicle or any additional axles of semi-trailers or trailers..... 22,400 pounds
3. Per inch width of tire measured between flanges of the rim in case of solid rubber tires.

Size of Tire Inches	Load per Inch (Maximum) Pounds
3	400
3½	400
4	500
5	600
6	700
7	750
8	800
10	800
12	800
14	800

Minimum thickness of Rubber for solid rubber tires:

Inches	Inches
3, 3½, 4, 5 Tires	⅞
6, 7, 8 Tires	1
10, 12, 14 Tires	1⅛

Speed Restrictions

In the matter of speed restrictions no motor vehicle should be operated upon a public highway at a rate of speed greater than is reasonable and proper, having regard to the traffic and use of the highway, or so as to endanger the life or limb of any person or the safety of any property, and should not in any event while upon an urban street run at a rate of speed greater than 15 miles per hour; upon a suburban street at a rate of speed greater than 20 miles per hour, or upon any other street or highway at a speed greater than 30 miles per hour.

NOTE.—The laws of many states and the proposed Uniform Vehicle Law prescribe for the three types of thoroughfares indicated a graduated schedule of speed limits based on the kind of tire equipment of the vehicle and its gross weight. Such elaborate and detailed schedules, however, are very difficult to enforce.

Special Permits to Raise Restrictions

There are, of course, times when it is imperative on certain highways or portions thereof that the movement of vehicles bigger and heavier than those allowed by law be permitted.

To meet such situations—which should be the rare exception rather than the rule—the state, county or municipality exercising jurisdiction over roads and bridges should be empowered under definite limitations to grant written permits for the movement of restricted vehicles to meet emergency conditions.

Special Permits to Lower Restrictions

To deal with bad frost or other similar conditions where it is essential to lower the weight or speed restrictions ordinarily enforced, the power of the state, as centralized in its highway departments or the county or local highway authorities, after consultation with and permission from the State Highway Department, should have power to reduce the weight or speed restrictions to points deemed essential to the preservation of highways or the safeguarding of travel.

In all such cases, however, there should be public hearings on the subject; due notice of the reduced restrictions should be given to the traveling public and the highways or portions thereof affected should be properly posted.

From the nature of the case, size restrictions on the vehicle of course can never be reduced.

Local Powers

Except as indicated, the subordinate political sub-divisions of the state, such as counties, cities, towns, boroughs, townships, etc., should have absolutely no power to prescribe size, weight or speed restrictions at variance with those allowed for the state as a whole. The need for such limitations on local governing bodies is too obvious to require discussion.

State Regulation of Motor Vehicle

Common Carriers

Final Report

NOTE—About the middle of the year 1921 the Conference Committee published a preliminary report on the subject of State Regulation of Motor Vehicle Common Carriers. This was given wide-spread publication and was extensively distributed among rail, electric and motor vehicle carriers as well as among public officials and numerous other interested persons. Experience with motor vehicle common carrier regulation was canvassed and opinions generally solicited. As a result of the survey the Conference Committee is led to make these observations and recommendations.

Copies of the preliminary and final reports on the subject of State Regulation of Motor Vehicle Common Carriers can be obtained from the Motor Vehicle Conference Committee, 366 Madison Ave., New York City.

These reports, in addition to a discussion of the entire subject, contain a digest of state laws in force January 1st, 1923.

Motor vehicles are subjected to two general but distinct uses: First, they are privately employed by their owners for the transportation of persons or property; second, for the transportation for hire of the persons or property of others than their owners.

The second general use is sub-divided into two definite and particular uses. In the first place, motor vehicles operating for hire are employed to carry certain persons or the property of certain persons to places prescribed in individual agreements entered into for the purpose; in the second place they are employed to carry indiscriminately all persons or the property of all persons under general conditions of agreement applicable to the whole public.

In a word, the second general use of motor vehicles, *i.e.*, for hire, splits into that of Private Carriers and Common Carriers.

Until a few years ago the legislatures of our forty-eight states in no way differentiated between these various uses of the motor vehicle in the laws which they enacted

Popular demand for motor transportation is increasing. It is estimated that there are 40,000 buses in the United States, including those operated by rural schools.

dealing with operating requirements, registration fees and the many other subject which are usually found in a state's motor vehicle laws.

In 1914, however, Pennsylvania definitely segregated motor vehicles when used as common carriers and placed them under the regulation of the State's Public Service Commission. Today the laws of twenty-two states provide for a greater or less degree of such state control.

During the course of the present year 1923 the legislatures of 43 states will meet in regular session and doubtless be called upon to consider many bills having for their object governmental regulation of the motor vehicle when used as a common carrier.

After carefully investigating the entire subject and viewing it imparitally from the standpoint of efficient transportation irrespective of the vehicular medium through which such transportation is effected the Conference Committee has arrived at the following conclusions:

If the legislature of a State deems that the best interests of all concerned—that is the general public, other forms of carriers and motor vehicle common carriers—can only be realized by regulation then the following fundamental principles should be followed in drafting and adopting laws on the proposition:

1. **Control over intrastate transportation of persons and property for hire, over regular routes or between fixed points, if adopted, should be exclusively in the hands of some agency of the State. No power whatever in the premises should be vested in the governing bodies of the municipalities of the State.**

2. **Such State control over motor vehicle common carriers should be placed in existing Commissions, such as the Public Utility Commissions, etc., of the various States. It should be provided, however, that at least one member of such a commission should be conversant with and in sympathy with motor transportation.**

3. **As a prerequisite to the operation of a motor vehicle common carrier, the owner thereof should be obliged:**

   a. **To obtain a Certificate of Public Convenience and Necessity with a proviso that lines in actual operation before the law goes into effect shall prima facie, be regarded as necessary to public convenience and necessity, and should therefore, automatically be granted a certificate.**

   b. **To take out liability insurance adequate to indemnify injuries to persons or damage to property resulting from negligent operation.**

4. **The State Regulatory bodies having control over motor vehicle common carriers should be vested with the same powers they exercise in controlling other forms of public utilities.**

5. **Any special or extra fees levied upon motor vehicle common carriers should be utilized exclusively for highway maintenance. Such special or extra fees should in no case be more than 100% greater than the normal registration fees for the vehicles of the class to which they belong.**

6. **Legislation should be enacted enabling steam railroads, trolleys and shipping companies to acquire, own and operate the motor vehicle in conjunction with their regular line of business.**

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GEORGE M. DICKSON.....National Motor Car & Vehicle Corporation
J. S. MARVIN, *Department Manager*
KENNETH C. MOORE, *Detroit Office of N. A. C. C.*

TRUCK STANDARDS COMMITTEE

D. C. FENNER, *Chairman*.....Mack Bros. Motor Car Company
H. E. DERR.....International Harvester Company
F. A. WHITTEN.....General Motors Truck Company
E. M. STERNBERG.....Sterling Motor Truck Company
A. MOOREHOUSE.....Packard Motor Car Company

REPRESENTATIVES IN CHAMBER OF COMMERCE OF U. S. A.

A. J. BROSSEAU.....Mack Bros. Motor Car Company
ALFRED H. SWAYNE.....General Motors Corporation
GEORGE M. GRAHAM.....The Chandler Motor Car Company

REPRESENTATIVES ON NATIONAL INDUSTRIAL CONFERENCE BOARD

A. J. BROSSEAU.....Mack Bros. Motor Car Company
ALFRED H. SWAYNE.....General Motors Truck Company

REPRESENTATIVE ON HIGHWAY EDUCATION BOARD

ROY D. CHAPIN.....Hudson Motor Car Company

EDUCATIONAL DEPARTMENT

JOHN C. LONG, *Secretary*
O. P. PEARSON, *Statistician*

Members of National Automobile

PASSENGER CAR

Trade Name of Car	*Members*	*Address*
Ambassador	Yellow Cab Mfg. Company	Chicago, Ill.
Anderson	Anderson Motor Company	Rock Hill, S. C.
Apperson	Apperson Bros. Automobile Company	Kokomo, Ind.
Auburn	Auburn Automobile Company	Auburn, Ind.
Baxley	Baxley Motor Car Company	Kalamazoo, Mich.
Brewster	Brewster & Company	Long Island City, N. Y.
Buick	Buick Motor Company	Flint, Mich.
Cadillac	Cadillac Motor Car Company	Detroit, Mich.
Case	J. I. Case T. M. Company	Racine, Wis.
Chalmers	Chalmers Motor Company	Detroit, Mich.
Chandler	Chandler Motor Car Company	Cleveland, Ohio
Chevrolet	Chevrolet Motor Company	Detroit, Mich.
Cleveland	Cleveland Automobile Company	Cleveland, Ohio
Cole	Cole Motor Car Company	Indianapolis, Ind.
Columbia	Columbia Motors Company	Detroit, Mich.
Cunningham	Jas. Cunningham Son & Company	Rochester, N. Y.
Daniels	Daniels Motor Company	Reading, Pa.
Davis	Geo. W. Davis Motor Car Company	Richmond, Ind.
Detroit Electric	Detroit Electric Car Company	Detroit, Mich.
Dixie Flyer	Kentucky Wagon Mfg. Company	Louisville, Ky.
Dodge Brothers	Dodge Brothers	Detroit, Mich.
Dorris	Dorris Motor Car Company	St. Louis, Mo.
Dort	Dort Motor Car Company	Flint, Mich.
duPont	duPont Motors, Inc	Wilmington, Del.
Durant	Durant Motors Company of New York	New York, N. Y.
Earl	Earl Motors, Inc	Jackson, Mich.
Elcar	Elcar Motor Company	Elkhart, Ind.
Elgin	Elgin Motor Car Corporation	Argo, Ill.
Essex	Essex Motors	Detroit, Mich.
Franklin	H. H. Franklin Manufacturing Company	Syracuse, N. Y.
Gardner	Gardner Motor Company	St. Louis, Mo.
Grant	Grant Motor Car Corporation	Cleveland, Ohio
Gray	Gray Motor Corporation	Detroit, Mich.
Handley-Knight	Handley Motors Inc	Kalamazoo, Mich.
Hanson	Hanson Motor Company	Atlanta, Ga.
Haynes	Haynes Automobile Company	Kokomo, Ind.
H. C. S	H. C. S. Motor Car Company	Indianapolis, Ind.
Holmes	Holmes Automobile Company	Canton, Ohio
Hudson	Hudson Motor Car Company	Detroit, Mich.

Chamber of Commerce, Inc.

MANUFACTURERS

Trade Name of Car	*Members*	*Address*
Hupmobile	Hupp Motor Car Corporation	Detroit, Mich.
Jackson	Jackson Motors Corporation	Jackson, Mich.
Jewett	Paige-Detroit Motor Car Company	Detroit, Mich.
Jordan	Jordan Motor Car Company	Cleveland, Ohio
King	King Motor Car Company	Detroit, Mich.
Kissel	Kissel Motor Car Company	Hartford, Wis.
Kline Kar	Kline Car Corporation	Richmond, Va.
Lafayette	Lafayette Motors Company	Milwaukee, Wis.
Lexington	Lexington Motor Company	Connersville, Ind.
Liberty	Liberty Motor Car Company	Detroit, Mich.
Lincoln	Lincoln Motor Company	Detroit, Mich.
Locomobile	Locomobile Company	Bridgeport, Conn.
McFarlan	McFarlan Motor Corp	Connersville, Ind.
Marmon	Nordyke & Marmon Company	Indianapolis, Ind.
Maxwell	Maxwell Motor Corporation	Detroit, Mich.
Mercer	Mercer Motors Company	Trenton, N. J.
Milburn Electric	Milburn Wagon Company	Toledo, Ohio
Mitchell	Mitchell Motors Company	Racine, Wis.
Moon	Moon Motor Car Company	St. Louis, Mo.
Nash	Nash Motors Company	Kenosha, Wis.
National	National Motor Car & Vehicle Corp	Indianapolis, Ind.
Oakland	Oakland Motor Car Company	Pontiac, Mich.
Oldsmobile	Olds Motor Works	Lansing, Mich.
Overland	Willys-Overland Company	Toledo, Ohio.
Packard	Packard Motor Car Company	Detroit, Mich.
Paige	Paige-Detroit Motor Car Company	Detroit, Mich.
Paterson	W. A. Paterson Company	Flint, Mich.
Peerless	Peerless Motor Car Company	Cleveland, Ohio
Pierce-Arrow	The Pierce-Arrow Motor Car Company	Buffalo, N. Y.
Pilot	Pilot Motor Car Company	Richmond, Ind.
Premier	Premier Motor Corporation	Indianapolis, Ind.
Rauch & Lang	Rauch & Lang, Inc	Chicopee Falls, Mass.
Reo	Reo Motor Car Company	Lansing, Mich.
Rickenbacker	Rickenbacker Motor Company	Detroit, Mich.
Roamer	Barley Motor Car Company	Kalamazoo, Mich.
R. & V. Knight	R. & V. Motor Company	E. Moline, Ill.
Sayers	Sayers & Scovill Company	Cincinnati, Ohio
Stearns-Knight	F. B. Stearns Company	Cleveland, Ohio
Stephens Six	Stephens Motor Car Company	Moline, Ill.

(Continued on following page)

Members of National Automobile Chamber of Commerce, Inc.

(Continued from preceding page)

PASSENGER CAR MANUFACTURERS (Continued)

Trade Name of Car	*Members*	*Address*
Stevens-Duryea	Stevens-Duryea, Inc.	Chicopee Falls, Mass.
Studebaker	The Studebaker Corporation	South Bend, Ind.
Stutz	Stutz Motor Car Company of America	Indianapolis, Ind.
Templar	Templar Motors Company	Cleveland, Ohio
Velie	Velie Motors Corporation	Moline, Ill.
Westcott	Westcott Motor Car Company	Springfield, Ohio
Wills-St. Claire	C. H. Wills & Company	Marysville, Mich.
Willys-Knight	Willys-Overland Company	Toledo, Ohio
Winton	The Winton Company	Cleveland, Ohio
Yellow-Taxicab	Yellow Cab Mfg. Co.	Chicago, Ill.

MOTOR TRUCK MANUFACTURERS

Trade Name of Truck	*Members*	*Address*
Acme	Acme Motor Truck Company	Cadillac, Mich.
Am. La France	American La France Fire Engine Co.	Elmira, N. Y.
Atterbury	Atterbury Motor Car Company	Buffalo, N. Y.
Autocar	Autocar Company	Ardmore, Pa.
*Buick	Buick Motor Company	Flint, Mich.
*Chevrolet	Chevrolet Motor Company	Detroit, Mich.
Clydesdale	Clydesdale Motor Truck Company	Clyde, Ohio
Commerce	Commerce Motor Car Company	Detroit, Mich.
Corbitt	Corbitt Motor Truck Company	Henderson, N. C.
*Cunningham	Jas. Cunningham Son & Company	Rochester, N. Y.
Denby	Denby Motor Truck Company	Detroit, Mich.
Diamond T	Diamond T Motor Car Company	Chicago, Ill.
*Dodge Brothers	Dodge Brothers	Detroit, Mich.
*Dorris	Dorris Motor Car Company	St. Louis, Mo.
*Dort	Dort Motor Car Company	Flint, Mich.
Duplex	Duplex Truck Company	Lansing, Mich.
*Earl	Earl Motors, Inc.	Jackson, Mich.
Federal	Federal Motor Truck Company	Detroit, Mich.
Garford	Garford Motor Truck Company	Lima, Ohio
G. M. C.	General Motors Truck Company	Pontiac, Mich.
Graham	Graham Brothers	Evansville, Ind.
International	International Harvester Company	Chicago, Ill.
Kelly-Springfield	Kelly-Springfield Motor Truck Co.	Springfield, Ohio
*Kissel	Kissel Motor Car Company	Hartford, Wis.

*Manufacturers of passenger cars also.

Trade Name of Truck	*Members*	*Address*
Kleiber	Kleiber & Company	San Francisco, Cal.
Maccar	Maccar Truck Company	Scranton, Pa.
Mack	Mack Bros. Motor Car Company	New York, N. Y. (Factory, Allentown, Pa.)
*Maxwell	Maxwell Motor Corporation	Detroit, Mich.
*Milburn Electric	Milburn Wagon Company	Toledo, Ohio
Moreland	Moreland Motor Truck Company	Los Angeles, Cal.
*Nash	Nash Motors Company	Kenosha, Wis.
*Old Hickory	Kentucky Wagon Mfg. Company	Louisville, Ky.
*Oldsmobile	Olds Motor Works	Lansing, Mich.
Oneida	Oneida Motor Truck Company	Green Bay, Wis.
*Overland	Willys-Overland Company	Toledo, Ohio
*Packard	Packard Motor Car Company	Detroit, Mich.
*Paige	Paige-Detroit Motor Car Company	Detroit, Mich.
*Pierce-Arrow	Pierce-Arrow Motor Car Company	Buffalo, N. Y.
Rainier	Rainier Motor Corporation	Flushing, N. Y.
*Reo	Reo Motor Car Company	Lansing, Mich.
Republic	Republic Motor Truck Company	Alma, Mich.
Rowe	Rowe Motor Manufacturing Company	Lancaster, Pa.
Sanford	Sanford Motor Truck Company	Syracuse, N.Y .
*Sayers	Sayers & Scovill Company	Cincinnati, Ohio
Schacht	G. A. Schacht Motor Truck Company	Cincinnati, Ohio
Selden	Selden Truck Corporation	Rochester, N. Y.
Service	Service Motors, Inc	Wabash, Ind.
Standard	Standard Motor Truck Company	Detroit, Mich.
Sterling	Sterling Motor Truck Company	Milwaukee, Wis.
Stewart	Stewart Motor Corporation	Buffalo, N. Y.
Traylor	Traylor Eng. and Mfg. Company	Cornwells Heights, Pa.
United	United Motors Company	Grand Rapids, Mich.
*Velie	Velie Motors Corporation	Moline, Ill.
Vim	Vim Motor Truck Company	Philadelphia, Pa.
Walter	Walter Motor Truck Company	New York, N. Y.
Ward	Ward Motor Vehicle Company	Mt. Vernon, N. Y.
White	White Motor Company	Cleveland, Ohio
Wilson	J. C. Wilson Company	Detroit, Mich.
*Yellow Taxicab	Yellow Cab Mfg. Company	Chicago, Ill.

*Manufacturers of passenger cars also.

Traffic Values

There is a temptation to regard congested city streets as an indication that the automobile market is approaching its maximum. It is just as well to recognize here a distinction between automobile demand and traffic congestion. Streets may be so crowded in some cities that it is difficult to see how more automobiles could move, except at great sacrifice of speed and gasoline. But it is a fact only about ten per cent of the total automobile registration is in large cities.

In other words, congestion on the country highways, rather than the city streets, would be a real indication of impending saturation, were such a thing as saturation possible. Congestion of country highways, however, bespeaks rather less an excess of vehicles than a backwardness of highway development.

Take any country through which runs a badly crowded highway, make good roads of all its roads, and there would be room for many more cars than can be built in many years.—*Automobile Topics.*

Associations of the Automobile Industry

National Automobile Chamber of Commerce

GENERAL OFFICES: Marlin-Rockwell Building, 366 Madison Avenue, at 46th Street, New York, N. Y.

PRESIDENT: Charles Clifton, Chairman of the Board of Pierce-Arrow Motor Car Company, Buffalo, N. Y.

GENERAL MANAGER: Alfred Reeves.

The National Automobile Chamber of Commerce is the successor of the National Association of Automobile Manufacturers, organized in November, 1900, and of the Automobile Board of Trade.

OBJECTS: To promote the interests of those engaged in automobile manufacture, and to develop the use of motor vehicles as a motor transport unit of maximum public service.

Through its organization, committees, and departments the N. A. C. C. works along the following lines:

Diffusion of information as to inventions, patents, state of the art, and conditions of trade in which members are engaged.

Acquiring, holding and disposing of property including patents and rights for the benefit of members but not for the profit of the Chamber.

Securing equitable railroad rates and service.

Opposing unjust legislation, and recommending constructive uniform laws concerning fees, insurance and traffic.

Encouraging the extension of foreign trade, and investigating the possibilities of markets abroad.

Management of two annual automobile shows, one in New York and one in Chicago.

Urging the construction of better highways, adequately maintained, and planned so as to give the greatest economic benefit to the nation.

Recommending a definite and equitable program for motor vehicle taxation.

Furthering standardization in engineering and manufacturing for the ultimate benefit of the public.

Developing improved methods of servicing cars and trucks.

Settling differences between members.

Promoting and enlarging friendly intercourse among men in the industry.

Co-operating with allied associations in the industry for the common good.

Studying the inter-relationship of all means of transportation.

Investigating motor vehicle market conditions.

Developing complete statistics on the production, distribution and use of motor cars and motor trucks, and on the relationship of these to the economics of general business.

Membership: Passenger car makers, 84; truck makers, 59. More regarding the Chamber's organization, committees and membership will be found on pages 84–91.

Motor and Accessory Manufacturers Association

GENERAL OFFICES: Fisk Building, 250 West 57th Street, New York.

PRESIDENT: W. O. Rutherford, B. F. Goodrich Rubber Co., Akron, Ohio.

GENERAL MANAGER: M. L. Heminway.

National organization representing interests of automotive parts and equipment manufacturers. Association has automobile show, credit, educational, export, legislation, and traffic departments. Field secretary has been appointed to keep in direct touch with members.

National Automobile Dealers' Association

GENERAL OFFICES: 320 North Grand Avenue, St. Louis, Mo.

PRESIDENT: G. G. G. Peckham, Cleveland, Ohio.

SECRETARY AND GENERAL MANAGER: C. A. Vane.

Object is promotion of automobile dealer business, constructive publicity on dealer aims, maintenance of high merchandising standards, research on the magnitude of the business, study of markets and dissemination of facts concerning the same, opposition to harmful legislation, support of good legislation, promotion of good roads.

Society of Automotive Engineers

GENERAL OFFICES: 29 West 39th St., New York City.

PRESIDENT: H. W. Alden, Detroit Axle Co., Detroit, Mich.

SECRETARY AND GENERAL MANAGER: Coker F. Clarkson.

Object of society is to promote the arts,

sciences, standards, and engineering practices connected with the design and construction of automobile and other automotive vehicles and apparatus, of all forms of self-propelled or mechanically propelled mediums for the transportation of passengers or freight, and prime-movers. Publications are *Transactions* (semi-annual), *Year Book*, *Journal* (monthly), and *Hand Book of Data Sheets*, including *Standards* and *Recommended Practices* (revised semi-annually). Nearly three hundred distinct mechanical and material standards, specifications, mounting dimensions of parts and accessories have been established by S. A. E. Membership over 5000.

American Automobile Association

GENERAL HEADQUARTERS: 1108 Sixteenth Street, Washington, D. C.

NEW YORK CITY OFFICES: 501 Fifth Avenue.

PRESIDENT: George C. Diehl, New York.

EXECUTIVE CHAIRMAN: M. O. Eldridge.

Composed of associations and clubs throughout the country and thousands of individual members, the A. A. A. is now well on its way toward a half million membership. It was organized at Chicago, in March, 1902. Its objects, briefly stated, are:

To unite in one body all the automobile clubs and individual motorists of the country.

To secure reasonable and just legislation and to aid in proper enforcement of automobile laws and ordinances.

To obtain local, State, and Federal aid in the construction and maintenance of good roads.

To encourage road travel and transportation, and to secure, prepare, and disseminate information relative thereto.

To support sportsmanlike contests and other movements that will advance motoring interests.

Rubber Association of America

GENERAL OFFICES: 250 West 57th Street, New York City.

PRESIDENT: Horace de Lisser.

SECRETARY AND GENERAL MANAGER: A. L. Viles.

A national trade organization embracing rubber manufacturers, importers, brokers and dealers in crude rubber, reclaimers and supply manufacturers of the United States and Canada.

Its membership consists of more than four hundred firms, and its object is to promote in all lawful ways the commercial interests of its members, and secure the advantages to be obtained through mutual co-operation, also to stimulate social intercourse among those connected with the rubber industry and commerce and in general for the promotion of the welfare of the rubber industry.

Its work is largely carried on through the media of "Divisions" or "Committees" constituted of the members of the Association engaged in a particular branch of the rubber industry.

Motor Vehicle Conference Committee

OFFICES: Room 1408, Marlin-Rockwell Building, 366 Madison Avenue at 46th Street, New York City.

CHAIRMAN: D. C. Fermer.

SECRETARY: Harry Meixell.

The Motor Vehicle Conference Committee, created the early part of 1920, is composed of representatives from the following organizations: American Automobile Association, Motor and Accessory Manufacturers Association, National Automobile Chamber of Commerce, National Automobile Dealers Association, and the Rubber Association of America.

This Committee acts as a clearing house for the problems, which, in increasing numbers, are confronting the individual members of its component organizations.

Automotive Equipment Association

GENERAL OFFICES: 1809-1818 City Hall Square Building, Chicago, Ill.

PRESIDENT: N. H. Oliver, Chicago, Illinois.

EXECUTIVE CHAIRMAN: Wm. M. Webster, Chicago, Ill.

The organization is international in its scope.

OBJECT: To promote and create a friendly and harmonious relation between manufacturers, jobbers, dealers and garage men and all organized effort incident to or connected with the Automotive Industry, including automobiles, trucks, tractors, air motors, etc.; to encourage legislation, local, State and National, in the advancement of the automotive interests; for the making of better roads; to collect, collate and disseminate information of interest to the trade generally.

Automotive Schools in U. S. A.

ALABAMA
- K. of C., Birmingham. (Colored School)
- Y. M. C. A., Birmingham
- K. of C., Mobile

ARIZONA
- Y. M. C. A., Bisbee

CALIFORNIA
- Y. M. C. A., Los Angeles
- K. of C., Los Angeles
- National Automotive School, Los Angeles
- K. of C., Oakland
- Y. M. C. A., San Francisco
- K. of C., San Francisco
- Modern Automobile and Tractor Schools, Inc., San Francisco
- Heald's Engineering & Auto School, Van Ness and Post Streets, San Francisco

COLORADO
- Y. M. C. A., Denver
- K. of C., Denver
- K. of C., Pueblo

CONNECTICUT
- Y. M. C. A., Hartford
- K. of C., New Haven
- Y. M. C. A., New London

DISTRICT OF COLUMBIA
- American Motor Schools, 1612 U Street, N. W., Washington
- K. of C., Washington
- Y. M. C. A., Washington

GEORGIA
- K. of C., Savannah. (Colored School)

ILLINOIS
- American School of Correspondence. (Correspondence Course), 58th St. and Drexel Ave., Chicago
- Greer College of Automotive Engineering, 2024 Wabash Ave., Chicago
- K. of C., Chicago. (Three Schools)
- Y. M. C. A., Moline
- K. of C., Peoria

INDIANA
- K. of C., Fort Wayne
- K. of C., Indianapolis
- Y. M. C. A., Indianapolis

IOWA
- Y. M. C. A., Davenport
- Iowa State Automobile & Tractor School, Sioux City

KANSAS
- Hutchinson Auto & Tractor School, Hutchinson
- K. of C., Topeka

KENTUCKY
- K. of C., Louisville
- Y. M. C. A., Louisville (Central Branch)

LOUISIANA
- K. of C., New Orleans

MARYLAND
- K. of C., Baltimore

MASSACHUSETTS
- Y. M. C. A., Beverly
- Y. M. C. A., Boston
- Y. M. C. A., Everett
- Y. M. C. A., Gloucester
- Y. M. C. A., Lawrence
- Y. M. C. A., Worcester
- K. of C., Worcester

MICHIGAN
- Michigan State Auto School, 3729 Woodward Ave., Detroit
- Detroit Institute of Technology
- Y. M. C. A., Detroit
- Y. M. C. A., Flint
- Y. M. C. A., Lansing

MINNESOTA
- Y. M. C. A., Duluth
- The Motor Institute, Inc., Corner 27th Ave. and University Ave., S. E., Minneapolis
- K. of C., St. Paul
- Modern Automobile & Tractor Schools, Inc., St. Paul
- Y. M. C. A., St. Paul

MISSOURI
- Y. M. C. A., St. Louis
- K. of C., St. Louis

NEBRASKA
- K. of C., Omaha

NEW JERSEY
- Y. M. C. A., Camden
- K. of C., Newark
- Y. M. C. A., Newark

NEW YORK

Y. M. C. A., Buffalo
K. of C., Buffalo
K. of C., Evening School No. 5, 240 W. 51st St., New York
K. of C., New York. (240 W. 51st St.)
K. of C., New York. (2755 Webster Ave.)
Stewart Automobile School, 225 West 57th St. New York
Y. M. C. A., 318 West 57th St., (West Side Branch), New York
Y. M. C. A., (Bedford Branch), Brooklyn
Y. M. C. A., Newburgh
Y. M. C. A., Syracuse

NORTH DAKOTA

K. of C., Fargo

OHIO

Y. M. C. A., Canton
Y. M. C. A., Cincinnati
K. of C., Cincinnati
Cleveland Automobile School, 1815 East 24th St., Cleveland
Y. M. C. A., Cleveland
K. of C., Cleveland
K. of C., Dayton
Y. M. C. A., Delaware
Y. M. C. A., Hamilton
Y. M. C. A., Toledo
Y. M. C. A., Youngstown

OKLAHOMA

Oklahoma City Automobile School, 1218 N. Western Ave., Oklahoma City
K. of C., Oklahoma City

OREGON

Y. M. C. A., Portland
K. of C., Portland

PENNSYLVANIA

Y. M. C. A., Berwick
Y. M. C. A., Butler
Y. M. C. A., Coatesville
Y. M. C. A., Erie
Spring Garden Institute, Broad and Spring Sts., Philadelphia
K. of C., Philadelphia
K. of C., Pittsburgh
Y. M. C. A. (East Liberty Branch), Pittsburgh
Y. M. C. A., Ridgway
International Correspondence School, Scranton, Pa.

RHODE ISLAND

Y. M. C. A., Pawtucket
Y. M. C. A., Providence
K. of C., Providence

TENNESSEE

K. of C., Memphis
K. of C., Memphis. (Colored School)
K. of C., Nashville
Automobile College of Nashville, Nashville

TEXAS

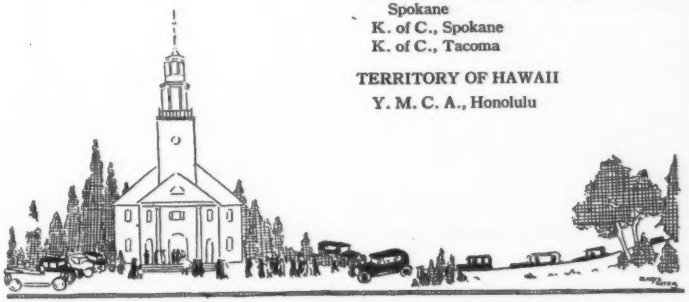
K. of C., Dallas
Y. M. C. A., El Paso
K. of C., Fort Worth
K. of C., San Antonio

WASHINGTON

Modern Automobile & Tractor Schools, Inc., Seattle
Y. M. C. A., Seattle
K. of C., Seattle
Modern Automobile & Tractor Schools, Inc., Spokane
K. of C., Spokane
K. of C., Tacoma

TERRITORY OF HAWAII

Y. M. C. A., Honolulu



"So many demands are made upon the pastor of the modern church that he cannot hope to accomplish his task without the aid of a car".
—Otterbein Advanced Quarterly.

Car Thefts Lower in 1922

78% of Those Stolen Are Recovered

(Figures compiled by National Automobile Dealers Association from records of 28 cities.)

1918—1922

	STOLEN					RECOVERED				
	1918	**1919**	**1920**	**1921**	**1922**	**1918**	**1919**	**1920**	**1921**	**1922**
New York	3,340	5,527	5,179	6,808	7,107	2,578	3,124	2,717	3,451	3,220
Chicago	2,611	4,447	5,974	6,799	3,636	1,954	3,447	4,340	4,438	3,919
Detroit	2,639	3,481	3,300	3,732	3,194	1,934	2,529	2,563	2,410	2,826
Cleveland	2,076	2,338	2,649	2,304	1,730	1,816	1,786	1,765	1,532	1,293
Los Angeles	1,629	1,688	1,654	2,333	4,802	1,499	1,365	1,152	1,725	2,772
Kansas City	1,144	1,661	801	1,577	1,237	606	794	341	1,153	1,154
Portland	1,088	1,528	465	338	472	990	1,378	418	303	441
Denver	901	1,440	858	1,862	820	627	1,187	651	1,711	742
San Francisco	1,122	1,354	1,186	1,652	1,960	1,082	1,304	1,156	1,608	1,924
St. Louis	2,241	1,241	788	1,560	1,708	1,354	944	641	1,247	1,452
Seattle	1,451	1,422	1,008	861	810	1,376	1,398	900	710	687
Indianapolis	404	1,031	1,152	1,238	883	334	692	833	979	77
Boston	866	1,002	480	490	379	607	580	297	216	310
Salt Lake City	797	776	592	516	432	790	758	555	482	404
Oakland, Cal	895	760	564	729	713	860	733	549	680	639
Omaha	1,039	734	634	927	856	669	567	507	855	819
Columbus, Ohio	451	550	513	408	349	352	373	278	355	328
Cincinnati	348	520	525	741	691	291	293	273	445	484
Oklahoma City	571	149	205	493	518	484	70	133	396	369
Albany	41	133	87	234	322	29	104	70	177	237
Buffalo	1,262	986	743	1,152	1,609	914	700	507	928	1,418
Newport, R. I.	4	9	12	14	28	4	9	12	14	28
York, Pa	6	10	8	2	25	6	9	8	2	18
Grand Rapids	152	189	262	267	345	149	137	250	207	319
Richmond, Va	84	207	148	130	287	62	161	93	100	242
Dayton, O	207	228	198	227	249	241	213	217	243	233
Lowell, Mass	26	25	18	36	64	16	17	7	31	54
Evansville, Ind	50	72	43	124	108	49	68	40	119	102
Total	**27,445**	**33,508**	**30,046**	**37,554**	**35,334**	**21,673**	**24,740**	**21,273**	**26,517**	**26,511**

1918	Not	recovered	5,772;	21%	of number	stolen;	79%	recovered		
1919	"	"	8,768;	26%	"	"	"	74%	"	
1920	"	"	8,778;	29%	"	"	"	71%	"	
1921	"	"	11,037;	29%	"	"	"	71%	"	
1922	"	"	8,823;	22%	"	"	"	78%	"	